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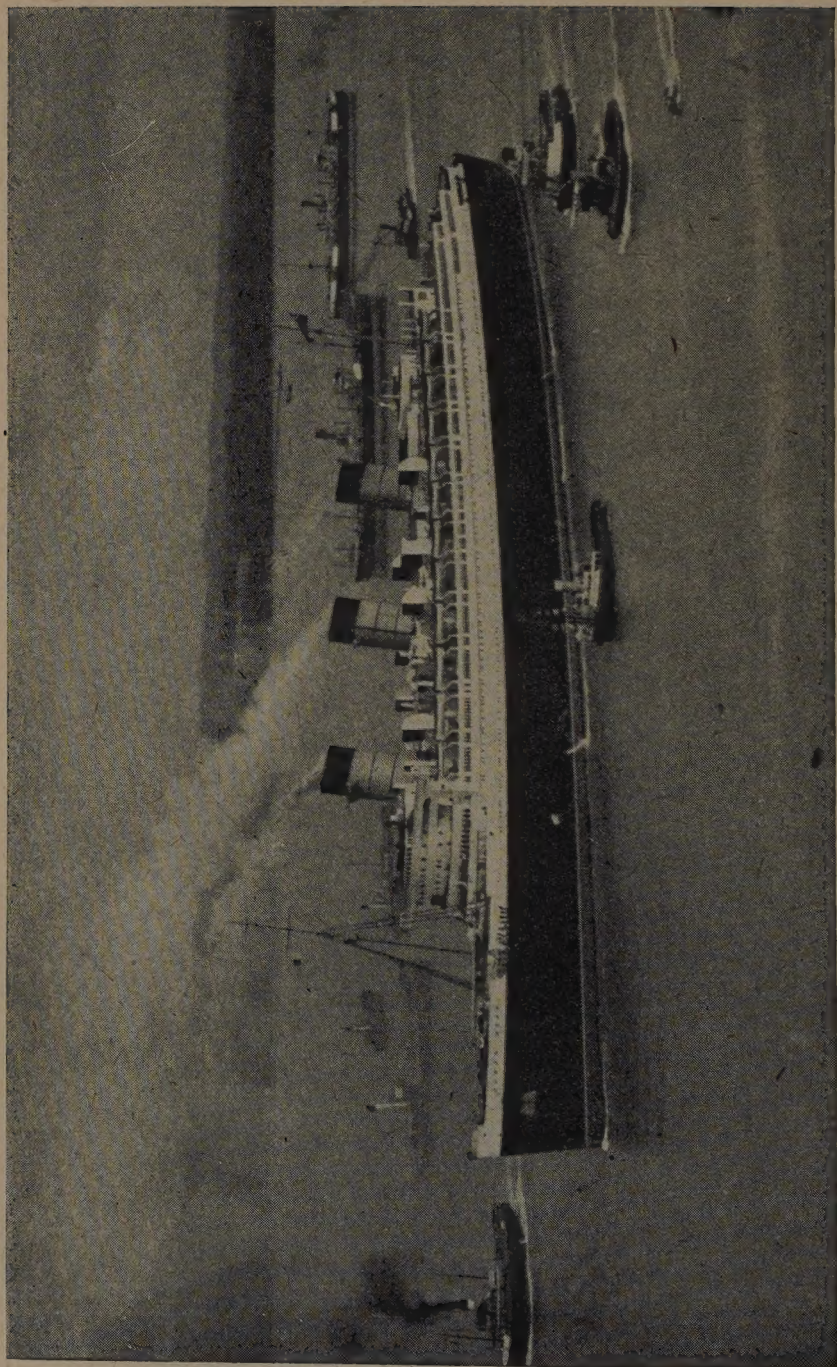
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HISTORY OF TRADE AND COMMERCE



The Queen Mary.

A HISTORY
OF
TRADE AND COMMERCE

WITH SPECIAL REFERENCE TO

CANADA

BY

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PREFACE

This little volume has been written especially for those Canadian high school students who take a course in commercial history as part of their work in industrial or commercial education. Perhaps the book may also be of use to university students who are making their first acquaintance with economic history, theory, or description. For such students the only books available have been those published in Great Britain or the United States, and the treatment given therein to Canada is extremely meagre. I have, therefore, tried to make a rapid bird's eye survey of general economic history, and then to devote the last third of the book to the story of Canada's material development.

With such a large field to be covered, I have had to omit any mention of many topics, give only a thumb-nail sketch of others, and compress accounts of some important and interesting events into a few lines. I hope, therefore, that teachers using the book will fill in the gaps, and expand the topics I have introduced. For that work the books mentioned at the end of each chapter will be found useful. I would also like to urge that in teaching the modern part of the subject, students be sent frequently to read relevant sections in some volume of descriptive or theoretical economics, and for the Canadian part of the story students should be expected to handle *The Canada Year Book* continuously. Students who have access to a set of the *Ency-*

clopaedia of the Social Sciences will find there valuable articles on virtually all the topics dealt with in the following pages. The *Canadian Historical Review* and the *Canadian Journal of Economics and Political Science* often contain articles bearing on the economic history of the Dominion.

In the present edition (1939) most of the book has been re-written, and the story has been brought down to 1938. The treatment of the periods covered by the first three chapters has been drastically changed, and while much that is new appears in these chapters, much that was in the earlier editions has disappeared, either because it no longer seems important or because it was not true.

H. HEATON.

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HISTORY OF TRADE AND COMMERCE

CHAPTER I

BUYING AND SELLING

WE are all buyers or sellers, or both, nowadays ; we live in a commercial age. We produce few or none of the goods we consume ; our food, clothing, furniture, and the other things we want for our daily life are made for us by other people. We start our commercial activities at an early age. Even the boy in kindergarten class "trades" marbles, cigarette cards, jack-knives, or other juvenile treasures, and the speed at which our pocket money vanishes is proof of the ease with which we acquire the spending habit. When we go out to work for our living, we become both buyer and seller, and the wares we sell may be of three kinds. (1) We may sell *goods*, the necessities, comforts, or luxuries our fellows desire. (2) We may sell *services*. The doctor sells us his medical skill and experience when he comes to our aid in time of sickness ; the lawyer sells his knowledge and advice when we are in legal difficulties or doubt ; the actor, musician, and movie theatre sell us pleasure, laughter,

or tears. The railroad, the street-car, the motor bus, and the ship sell us transportation service by taking us or our goods quickly to places that we should reach only slowly, or never at all, if we had to walk or row ourselves. (3) We may sell our *labour*, our power to do work of a certain kind, the strength of our muscles, the skill of our fingers, the ability of our minds. A few people are so rich that they do not need to work for a living ; yet even the "idle rich" man lives by selling something. He has property in the form of land, buildings, or money, the use of which he sells to individuals, corporations, or governments, and from the rent, interest, or profit he receives as sale price he is able to buy what he needs. Thus we all live in a market, selling our wares and then buying others.

Specializa- tion

Of this market, one important feature must be noted. It is the tendency of each trader to sell only one thing or group of things. One shop may sell nothing but hats and men's "furnishings," another only shoes, another musical instruments. The doctor may try to abandon "general practice" and become a specialist dealing only with eyes or ears or throat troubles, children's complaints, or surgical operations. Many wage-earners have only one kind of skill to sell, and a man may go through life selling nothing but his ability to make waistcoats, or drive a street-car, or put points on pins, or tell you the name of the next railway station and urge you not to forget your parcels. In high school and university each teacher may concentrate on some particular branch of knowledge ; one knows much chemistry but could teach little Latin and less Greek ;

another is an expert in history but does not know the difference between an acid and an alkali ; and so on. We are all tending to become specialists in some small corner of the market ; we are trying to be master of one trade instead of Jack of all.

This specialization we call *division of labour*. It is one of the most important factors producing material progress ; for as we cut up the work of the world into little patches and give each man one task, we produce experts who do the job more easily, quickly, and accurately. Practice makes perfect, whether it be in laying bricks, making up Pullman berths, writing shorthand, handling a paint-brush, or cutting glass. And when the practice is done by a person who has a natural gift for that kind of work, when the man who is naturally skilful does skilled work all the time and leaves those who have neither skill nor aptitude to do tasks which do not require these qualities, then each member of society is being used to the best purpose, and the greatest output of goods and services is achieved with the least waste of talent or energy.

Division of labour extends beyond individuals to regions and countries. Geographical areas differ in soil, climate, mineral resources, natural transportation facilities, and in the presence of useful native plants and animals. These differences make various regions naturally suitable for the production of certain commodities. We *could* grow grapes and oranges north of the Arctic Circle, but we should have to do it in glass houses, burn much fuel, and the product would be meagre and costly. Tropical regions need neither glass nor furnaces, and can produce certain goods cheaply and in large quantities. The vast semi-arid

regions of inland Australia are unfitted for agriculture, but they can support millions of sheep and thus supply the world with large quantities of mutton and wool. In Lancashire it always seems to be raining, and crop-growing would be a hazardous occupation; but the very dampness of the atmosphere makes the region a natural home for spinning and weaving cotton, since cotton must be spun in damp air.

Of course there are other factors to be considered before we decide what the people of any region are to do. Is a supply of capital or labour available? Is it wise, is it even safe in a world that occasionally wages war, to put all the eggs in one basket and produce only one commodity? Can the surplus goods of a favoured region be easily carried to market, and when they get there will there be a buyer for them at a profitable price? These and other questions have to be answered, but broadly speaking it is true that men tend to give special attention to those tasks for which climate and natural resources fit their district.

Exchange

From this regional and personal specialization springs the need for the market. If everybody everywhere produced the same things, there would be no exchange. We can imagine the market as a great storehouse into which we deliver the particular goods, services, or labour we have to sell. Each takes in his one product, and in return gets bits of the many other products he needs. The use of money prevents us from seeing how simple the process really is, and so the maker of bolts in an Oshawa automobile factory does not realize that he is exchanging those bolts, apparently for dollars in his

pay-envelope, but really for Australian wool woven into Yorkshire tweeds, for raw Alabama cotton turned into Lancashire cotton fabric, for Virginia tobacco prepared and packed in Montreal, for tea from India, coffee from Brazil, flour from Manitoba, electricity from the Trent Valley, pictures from Hollywood, coal from South Wales, oranges from Florida, raisins from Greece, street-car rides and for a roof over his head in Oshawa. The seller may consume or use none of the things he actually makes; but provided he can sell his own particular brand of labour or service or goods, he can spend the proceeds as he wishes.

Here then are the two outstanding facts of modern economic life—specialization and exchange. We can realize how important they are if we picture a world without them. Imagine an individual cut off, as Robinson Crusoe was, from all contact with the outside world, but with no carefully equipped wreck lying near the beach. Such a man would be compelled to meet all his own needs by his own many-sided labour. He would have to be farmer, builder, blacksmith, spinner, weaver, butcher, baker, tinker, tailor, hunter, fisher, and a dozen other things as well. He would produce everything himself, or rather he would have to do without the things he could not produce, and they would be many. He would be limited by the natural resources and climate of the place on which he was stranded, and be forced to fashion the necessary implements before he could hunt, fish, farm, or make. Unless he was, like the sailor in the *Just So Stories*, a man “of infinite resource and sagacity,” his life would be drab, crude, and short. Such a picture may seem fanciful, but there have been many periods and

regions in which people lived by producing most of the goods they needed rather than by selling the goods they produced, and then buying what they required.

The medieval villager grew and made most of the things he consumed. As late as 1800 a visitor to the north of England found that "almost every article of dress worn by farmers, mechanics, and labourers is manufactured at home, shoes and hats excepted. There are many respectable persons at this day who never wore a bought pair of stockings, coat, nor waist-coat in their lives, and within these (last) twenty years a coat bought at a shop was considered a mark of extravagance or pride if the buyer was not possessed of an independent fortune." At that time, and even later, the rural family in Eastern Canada lived on what it produced, and only to a small extent met its needs by buying from the outside world.

This making of goods for one's own use has been called *usufecture*, an ugly word but useful. Having introduced it, we may as well present another coined word—*usuculture*, cultivation for use, not for sale. We shall see that during the greater part of human history, until within the last two centuries, the great bulk of the world's work has been usuculture or usufecture.

Features of Commercial Growth

The history of commerce describes how and why this self-sufficing mode of life was changed to that of buying and selling the products of specialized labour.

The story traces three chief developments: (1) an increase in the quantity and variety of goods handled; (2) an increase in the proportion

of people who were buyers and sellers ; (3) an extension of the distance goods were carried to market. Modern commerce handles all things that have value ; it sells them to all people ; it fetches them from the uttermost ends of the earth. It affects almost everything, everybody, everywhere.

The growth in the number of buyers and of goods sold has been partly the result of a growing division of labour, for the specialized worker buys things which the self-sufficing producer would make for himself. If the prairie farmer concentrates on wheat production, he has to go to the market for his butter, eggs, meat, manufactured wares, and even his flour. The housewife, who once used to spin, bake, brew, wash and make the family's clothes in addition to doing the housework, looking after the children, and helping her husband to farm his land, abandoned her spinning wheel when spinning machines were invented, and has since handed over other tasks to the baker, brewer, candle-maker, butter factory, tailor, and laundryman.

But an equally important cause of the growth in the number of commercial wares was the fact that the production of new commodities and the extension of cheap transportation awakened new demands. Every individual is a bundle of actual or possible wants. Those wants are unlimited in number, and new ones make themselves felt on the least provocation. So long as a thing does not exist, or its existence is not known—whether it be knives and forks, china, cocoa, bananas, automobiles, tobacco, radio sets, or comic strips—we are satisfied with the things we have. But if an inventor produces some new article, or if contact with people of

a different or more advanced civilization introduces some new commodity to us, we feel a new want and shall not be happy till we can satisfy it. When the Crusaders saw the fine fabrics, exquisite metal work, and other luxuries enjoyed by the people they were fighting, new wants stirred in their breasts and the European demand for Asiatic wares grew rapidly. When the white man introduced mirrors, guns, and "fire-water" to the African negro, the American redskin, and the New Zealand Maori, those people soon wanted them. At first new wants are satisfied only by the rich who can afford to pay a high price for the luxury ; but others, less rich, also want the new toy, and so gradually cheaper production or importation allows the luxury of a few to become the comfort of many and eventually the necessity of all.

The extension of the geographical range of commerce was largely the result of improvements in the means of transportation. The medieval producer sold most of his meagre surplus in the local market, and little of it went far afield, though there was some long-distance trade in wool and grain. While roads were bad and ships small, it was unprofitable to carry goods long distances unless they were small and valuable and were wanted by people who could afford to pay high prices to cover the heavy cost of transportation. But during the 15th and 16th centuries new worlds and new sea-routes to the Orient were discovered. Along these routes larger ships carried produce much more cheaply ; from the New World new commodities were brought, while improvements were slowly made in roads and rivers in order to allow inland commerce to flow more freely. But it needed the steamship and the railway

to make world trade possible in heavy raw materials and foodstuffs.

To-day the trade of every country is divided into two parts—domestic and foreign. In every land the domestic market is larger than the foreign. Canada and Australia, in spite of their reputation as large exporters, consume two-thirds of their annual product and send abroad only one-third. Great Britain in 1907 sent abroad only one-third of her gross production, and the fraction is smaller to-day. The domestic trade is largely concerned with feeding the towns which are such a feature of the modern world, and with supplying fuel and raw materials for the factories. In return the cities supply the manufactured wants of their own people and of the rural population. In a large country such as the United States there is also great domestic exchange of the products of different climatic or mineral areas, such as butter, oranges, lettuce, cotton, gasoline, or coal.

Foreign trade is often chiefly concentrated on neighbouring countries or on one or two large buyers ; but it may also be widely diffused. Canada sells about 70 per cent of her exports to Great Britain and the United States, but smaller amounts are sold to nearly sixty other countries. In return she buys 80 per cent of her imports from her two best customers, but purchases some things from nearly every other land, even from such places as Abyssinia and Liberia. Some well known modern industrial products are manufactured in only a few countries, yet they can be found in every continent ; men in most inaccessible places have radio sets, a tourist can buy films for his camera in any town anywhere, and the best known

automobiles are used in every part of the world where there are roads—and in many where there are none.

**Influences
on
Commerce**

The history of commerce is the story of selling more kinds of goods to more people in more places. It is in part the history of the merchant class, that body of men who have sought to earn a living (or make a fortune) by buying and selling, by hunting for goods and purchasers, by taking the goods to the buyer, and by establishing warehouses and stores in which commodities could be housed till the purchaser came to buy them. In Canada one "gainfully occupied" person out of every ten belongs to this class or is employed by it. But behind the work of these "middlemen" lie four other activities which influence, and in turn are influenced by, the growth of trade.

Production. The first is production. Goods cannot be sold until they have been produced, but it is useless to make or grow them unless they can be sold at a price which repays the producer for his outlay or can be consumed by him. An increased or new demand puts a strain on the machinery of production, and producers have to seek for better methods or improve or expand their organization to cope with it. If the market is great enough, production can be organized on a large scale and division of labour can be carried very far. On the other hand the methods of production determine the cost at which a commodity can be sold, and therefore the size of the market. For instance, it once cost so much to produce stainless or rustless steel that this steel could be used only for cutlery; then

a cheaper method was found, and the steel became more widely used ; but if still cheaper methods can be discovered, and the steel can be produced in large quantities at low cost, a vast new market will be found in industries where steel is exposed to the weather, *e.g.* railroads and steamships. Thus commerce calls on industry and agriculture to do new things or do old things better ; the producer creates new products and tells the commercial man to sell them ; sometimes the producer sends out from farm, mine, or factory more goods than can be sold profitably, and then there is depression.

Transportation. The second influence is transportation. Exchange, except between neighbours, is impossible until men can move goods easily from place to place, and in large measure the history of commerce—we might almost say the history of civilization itself—is the story of man's steady improvement of the means of transportation by land, sea, and air.

Currency and Credit. The third influence is currency and the facilities for credit. If trade was to pass beyond crude barter, men needed some medium of exchange and some standard by which the values of different commodities could be measured and expressed in common terms. Money was devised, and the cobbler who sold his boots to the butcher, but did not want meat in return, could take payment in money. That money he could then take to the tailor, who had clothes to sell but did not need boots, and pay for his jacket. If he did not want a coat at the moment he could keep the money, which thus became a store of value as well

as a medium of exchange and a foot-rule to measure the relative worth of boots and beef.

Commerce needed more than a good stable currency. It needed credit, so that the trader who was embarking on a long or distant venture, and who might have to wait months before he sold and received payment for the goods he bought to-day, could borrow money to supplement such capital as he possessed and tide him over the waiting period. It is true that he did not always have to pay cash for the goods he bought, but might have three, six, or even twelve months in which to pay for them ; thus he would owe money to others while others owed money to him, in a network of debt. Yet he must always be able to pay his debts when they fell due, or his reputation would suffer, and if his own funds were inadequate there must be some one available from whom he could borrow. Commerce also needed some machinery by which debts, especially long-distance, could be paid without sending precious metal or coins, so that a Toronto importer could pay for the goods he bought in Havre, Hamburg, Hong Kong, and Havana without sending silver or gold to his creditors. Therefore the banking system grew up, to gather in savings, to lend them to such as wished to borrow them, and to facilitate the payment of debts.

The State. The fourth influence on commerce is the state, by which we mean the dominion, provincial, municipal, or county government, or all four of them. The great bulk of the world's production and trade is carried on by *private enterprise*. Each individual is legally free to use his capital or labour in any way he thinks most advantageous to himself. He can under-

take any trade or calling he wishes, except a few forbidden occupations, such as highway robbery, piracy, or forgery. If he has no capital he sells his labour in the best possible market he can find ; if he has capital he tries to employ it in making and selling, hoping to receive in return a wage for his labour, interest on his capital, and profit on his enterprise. The desire for profit is the chief motive urging him along, though it is not the only one ; and if no profit is forthcoming the community will soon be deprived of his services and capital.

The state has not always told the individual he is free to do what he wishes, but in modern times the doctrine of free enterprise is widely accepted, except in Soviet Russia and in countries which have a caste system, such as India. Yet free enterprise does not mean that the state leaves the individual alone. It *helps* him, by safeguarding life and property, through its laws, police, penitentiaries, courts, army, and navy ; it helps by providing roads, establishing a currency, fostering public health, collecting statistics, appointing trade commissioners, building lighthouses, issuing weather reports, undertaking research, subsidizing shipping, setting up schools and universities, and in a score of other ways. When times are bad, the modern state has to help the victims of low prices, heavy debts, stagnant markets, and unemployment. It has to relieve suffering and try to stimulate recovery from depression.

While helping the individual, the state also *regulates* his actions. It realizes that the money-making methods of some citizens may be harmful to others or to the community as a whole, and that individual

wealth may be won at the cost of injury to the people's health and welfare. "Tricks of the trade" must be prevented; there must be no hitting below the belt; and there must be no heartless treatment of the innocent, the ignorant, the poor, and the weak. Hence the state demands that goods shall be pure and clean, that weights and measures be honest, that certain services be sold at a reasonable price, that excessive interest rates be not charged, that children be not employed, and that wage-earners shall not work excessive hours, toil in unhealthy surroundings, or be paid less than a living wage. The individual may be forbidden to practise certain occupations until he has been properly trained, *e.g.* medicine. Nay, more, the state may feel that the country's general economic development should go in a certain direction, and that more goods should be grown or manufactured in the country instead of being imported. If it holds this view, it may, by imposing tariffs on foreign wares, injure the enterprise of those who live by importing goods, and encourage others to take up farms or set up factories under the shelter of the tariff wall.

In the third place the state may *supplement* private enterprise or even *compete* with it. It may run railroads, establish banks, own ships, dig canals, manufacture goods, build houses, open shops, generate electricity, and operate a radio system. Sometimes it does these necessary things because there is no profit in them, and private enterprise either will not touch them or has tried and failed. Sometimes it frankly competes with private rivals in the hope of reducing prices to consumers. Sometimes it acts on the principle that certain services which are called "public utilities"

must be monopolies, since we cannot have two rival street-car systems running in the same streets or two rival telephone services in the same area ; and it holds that such monopolies should be run by the state for public benefit rather than for private profit.

Finally, the state takes from the individual part of his income while he is alive and part of his property when he dies. By taxes of almost every conceivable kind it raises funds to defray the cost of government, to pay interest on money it has borrowed for warlike or peaceful purposes, and to repay its debts. In modern times it may make especially heavy demands on the income and property of the rich, and spend some of this revenue in improving the conditions of the poor.

In the following pages we shall trace the development of our modern commercial system, keeping especially in view the extension of the area and wares of commerce, the improvements in transportation, the methods of marketing, the shaping of better money and banking systems, and the activities of the state. But since production and commerce are so closely bound together, we shall be obliged to examine the way men grew or made the goods they consumed or sold.

Supplementary Reading.—For a more detailed discussion of the nature of commerce, see Clive Day, *History of Commerce*, pp. 1-5 ; J. Russell Smith, *Commerce and Industry*, chap. 42, or *Industrial and Commercial Geography*, part 2, chap. 1 ; H. Heaton, *Economic History of Europe*, chap. 1.

CHAPTER II

THE BEGINNINGS OF COMMERCE

The Food Supply PRIMITIVE man knew little of trade. He was busy slowly discovering better ways of obtaining the food, clothing, and shelter he needed. At first he got his food in the same way as did the animals around him : he *collected* or *caught* it. He hunted and fished, he gathered shell-fish, wild fruits, grains, nuts, leaves, and roots. But he differed from the animals in that he invented weapons of wood, bone, or stone to help him, and learned to use spears, arrows, boomerangs, traps, hammers, axes, and knives. Thus armed, he was more successful both in catching his prey and in beating back the animals which tried to catch him.

Then in some parts of the world—grassy plains rather than forests—he learned how to domesticate some animals instead of killing them. Dogs, cattle, sheep, goats, hogs, poultry, asses, camels, and horses were tamed. Man thus was able to add milk and eggs to his diet, he could shear his sheep and give variety to his clothing, he could use some animals in hunting and others as beasts of burden, and he learned to ride. With his flocks and herds he roamed about the great plains, the plateaux, or the mountain slopes in search of grass and water ; he might fight other herdsmen

who disputed with him the right to use some piece of land, oasis, or stream ; and he might trade some of his live stock for something which he wanted to possess.

Then some men—or probably women—domesticated wild grains, roots, and fruits. They discovered that if they planted some of the grain which they had laboriously collected, in a plot of land that had been cleared and tilled, a crop could be harvested. The work was easiest and the results were best on the banks of some river which periodically overflowed, spreading water, and leaving behind a layer of silt. Hence it was in the valleys of the Nile, Tigris, Euphrates, Indus, Ganges, and Yangtze-kiang that agriculture made its appearance and won its richest returns ; but the practice spread to less fertile regions, and even in forest areas men began to clear away trees and cultivate the soil.

The Coming of Industry

While man was learning to collect and catch, to tame animals and plant seeds, he was also discovering how to make raw food more edible and how to turn raw materials into useful commodities. The basic industries were born : clothmaking, by spinning, weaving, and dyeing fibres of wool, flax, or cotton ; pottery-making, by shaping vessels of clay and baking them in the sun or near a fire ; tanning and the making of leather clothes, harness, ropes, tents, etc. ; and the production of a variety of wooden articles where lumber was available. Crude flint tools were used at first, and then were ground or polished to give them a sharper edge or point. Handles came into wider use and gave greater force to a blow. Bones and horns

were made into needles, spear-points, hoes, and sickles. Then metals were discovered, and, as the Stone Age gave place to the Copper, Bronze, and Iron Ages, tools and weapons were improved greatly. Copper was soft and tools made from it were easily bent or blunted; but if a pinch of tin was added to the molten copper the result was an alloy, *bronze*, which was tough and durable. Iron came later. With metal tools better work could be done on wood, cloth, or leather, while stone or metals could be cut into desired shapes.

The tools and equipment for these infant industries were few and simple, and remained so for thousands of years, until within the last two or three hundred years. But in the hands of specialized workers who gave their whole lifetime to one occupation, they could be used to produce goods of fine quality, intricate pattern, and great beauty.

The development of the three methods of obtaining food, of designing tools, and of starting industries occupied thousands, or rather tens of thousands of years. But at the end of this long dawn we begin to see people living a settled and busy life in some favoured spots, farming, making goods, trading, building, worshipping, and ruling or being ruled. The experts are still debating fiercely where this settled civilized life first began; but it is sufficient for our purpose to say that by 3000 B.C., and possibly by 4000 B.C., the valleys of the Nile, Tigris, and Euphrates housed economically advanced and many-sided civilizations. Since these civilizations influenced the later economic development of Europe, and consequently of America, let us glance at them for a moment.

Egypt

About 5000 B.C. men began to cultivate the banks of the Nile. Egypt was rainless, but when the water deposited by the tropical summer rains of Abyssinia reached the lower Nile in July, the river rose, sometimes as much as twenty feet, and flooded the narrow valley. When it subsided it had soaked the soil, dissolved some unwelcome salts which were in the ground, and left a layer of silt. The soil was then easily cultivated and planted, and the crops which grew during the warm sunny winter were harvested during the spring before the next flood came. A strong government rose up in the valley, and one of its chief tasks was to build dikes, reservoirs, etc., thus controlling the flood, steering it on to larger areas, and storing water for the dry months. Man improved on the natural irrigation, and there was nearly always "corn in Egypt."

Under such easy farming conditions part of the population could grow enough food for all, and the rest of the Egyptians could do other things, as priests, rulers, warriors, manufacturers, or traders. If nature is stingy or man's methods are poor, it may need all the labour of all the population to produce a bare subsistence. But if the earth is bountiful, part of the people can produce enough food and raw materials for all of them; and if man's methods and equipment become very efficient he may no longer need to call on women and children to help him. In the ancient world the fertility of the Nile banks freed many Egyptians for non-agricultural pursuits. In the modern world, machinery and power make it possible to free children from manual labour and turn child-



Egyptian Harvest Scene.

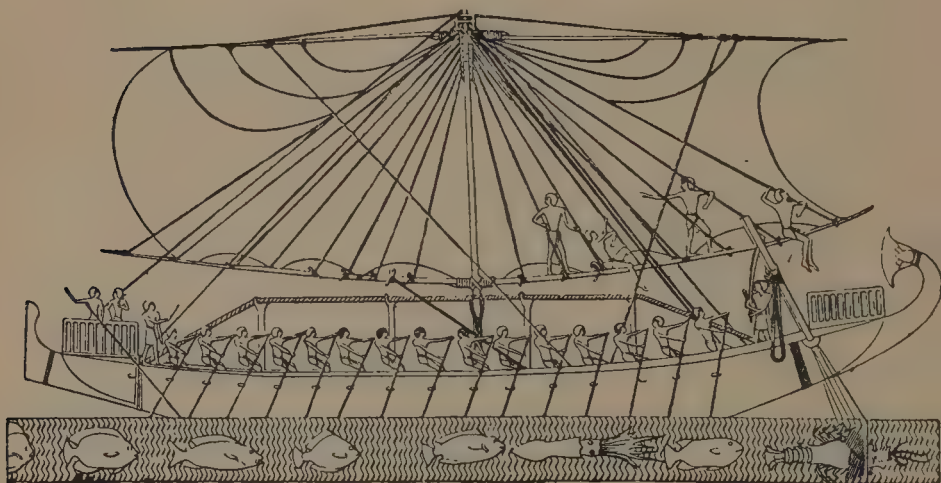
1. The reapers. 2. A reaper drinking from a cup. 3, 4. Gleaners; the first of these asks the reaper to allow him to drink. 5. Carrying the ears in a rope basket, the length of the stubble showing the ears alone are cut off. 8. Winnowing. 10. The tritura (answering to our threshing). 12. Drinks from a water-skin suspended in a tree. 14. Scribe who notes down the number of bushels measured from the heap. 16. Checks the account by noting those taken away to the granary.

hood from a period of work into one of education and play.

On its agricultural foundation Egypt built an industrial, commercial, political, and religious superstructure. Industrial arts developed rapidly, and from the inscriptions and articles found in tombs we know the variety and quality of the products. The goldsmith and jeweller worked precious stones and metals into elaborate and beautiful ornaments. The potter began to use a wheel on which to mould his wares, and baked them in an oven. Spinners and weavers made linen as fine as silk, and produced richly patterned fabrics. The cabinetmaker decorated his furniture with inlays of gold, silver, ebony, or ivory. The sculptor was equally at home carving little ornamental figures or hewing the Sphinx out of a promontory of rock. The painter learned to mix colours that are still vivid after five thousand years. Of course these beautiful wares were not enjoyed by the peasant or by the craftsman who made them. They went to the king, the nobles, or the priests, who lived in luxurious splendour ; or they were put into the vast tombs in which the Egyptians buried their dead. The peasants, slaves, and industrial workers had to be content with plain living and homely wares, and the manufactured articles which they used were usually the product of their own spare-time labours.

Much of the raw material for Egyptian luxuries could not be produced in Egypt. The country had no forests and scarcely any mineral deposits ; spices, which were needed to flavour food and drink, could not be grown ; ebony, ivory, ostrich feathers, precious stones, amber, fur, and other features of Egyptian finery were not

to be found at home. Egypt had to draw supplies of these materials from elsewhere, and foreign trade developed. So her boats ventured out on the waters of the Mediterranean and Red Seas, and her caravans of donkeys moved south and west. They took with them wheat, metal, and textile manufactures, and papyrus, which was a kind of writing "paper" made by splitting and flattening out reeds and then pasting



Egyptian ship of the expedition to Punt (Somaliland) about 1600 B.C.

them together. They brought back the cedar and ores of Lebanon or Asia Minor, slaves and raw materials for luxuries from Central Africa, the spices, drugs, and precious stones of Arabia and India, and the metals, furs, and amber of Europe. Egypt cut a canal between the Nile delta and the Red Sea, in order to get easier access to Arabia, East Africa, and the lands of the Indian Ocean.

Babylonia

The story of Babylonia closely resembles that of Egypt. The Tigris and Euphrates overflowed when the snow of the northern highlands melted. The streams flowed more quickly than did the Nile, were more heavily charged with silt, and the flood came at the wrong time of the year. Hence rulers had to control the water more vigorously, build large reservoirs, keep the channels from becoming silted up, and work out a most elaborate system of irrigation. Large yields of wheat, barley for bread and beer, dates, and animal products were thereby obtained. A governing and priestly class defended and ruled the towns and villages, regulated the water supply, and appropriated much of the land or its produce. Craftsmen developed great skill and artistic sense in supplying luxuries. From buried tombs and palaces at Ur and other places specimens of the handiwork of these men have recently been unearthed : jewellery of gold and precious stones, harps decorated with gold and silver, ostrich shells crusted with mother of pearl or lapis lazuli, beautifully figured daggers, vessels, and lamps.

Like Egypt, Babylonia lacked many raw materials or finished products. She obtained them by trading (or by stealing them in warfare) ; and her position on the map was very favourable for trade. To the west lay Phœnicia, Egypt, and Europe ; to the north Asia Minor, the Black Sea, and Russia ; to the south was Arabia ; and to the east were India and China. From all points of the compass she could draw what she lacked, and give her own farm or workshop products in return. The Babylonian cities were therefore centres of highly developed trade and of experienced traders.

The priests in the temples were just as keen merchants and bankers as were the laymen. The value of goods was expressed in terms of a fixed weight of copper or of silver, and bars or round pieces of metal were used in making payments. Commercial laws regulated partnerships, contracts, leases, loans, promissory notes, and the conduct of business agents. Traders wrote letters or kept records by cutting queer wedge-shaped letters or words on clay tablets, which they then baked. As we read these records or study the laws of the land, the things which men did and the problems they faced in 2000 B.C. seem very familiar and modern.

When the eastern civilizations had fully developed, Europeans were still living in the Stone Age—hunting, fishing, collecting, tending cattle, using crude weapons or tools, and making very simple commodities. There was no large area blessed with good open soil, water supply, and climate. Much of the continent was covered with forest, and had to be laboriously cleared before cultivation could begin. Many areas, especially the Danube Valley or the mountain sides or moors of Spain, the Alps, the Balkans, and England, were good for pasture, but poor for crops ; and some regions, such as eastern England, Holland, and north Germany, were so low-lying and swampy that they were fit for little more than fishing or duck-hunting. Finally, while the climate of the areas which faced the Mediterranean was warm and fairly dry, that of the temperate zone north of the Alps was cool or cold, damp or wet.

Yet slowly but surely Europeans learned how to make better use of their environment. Bands or whole

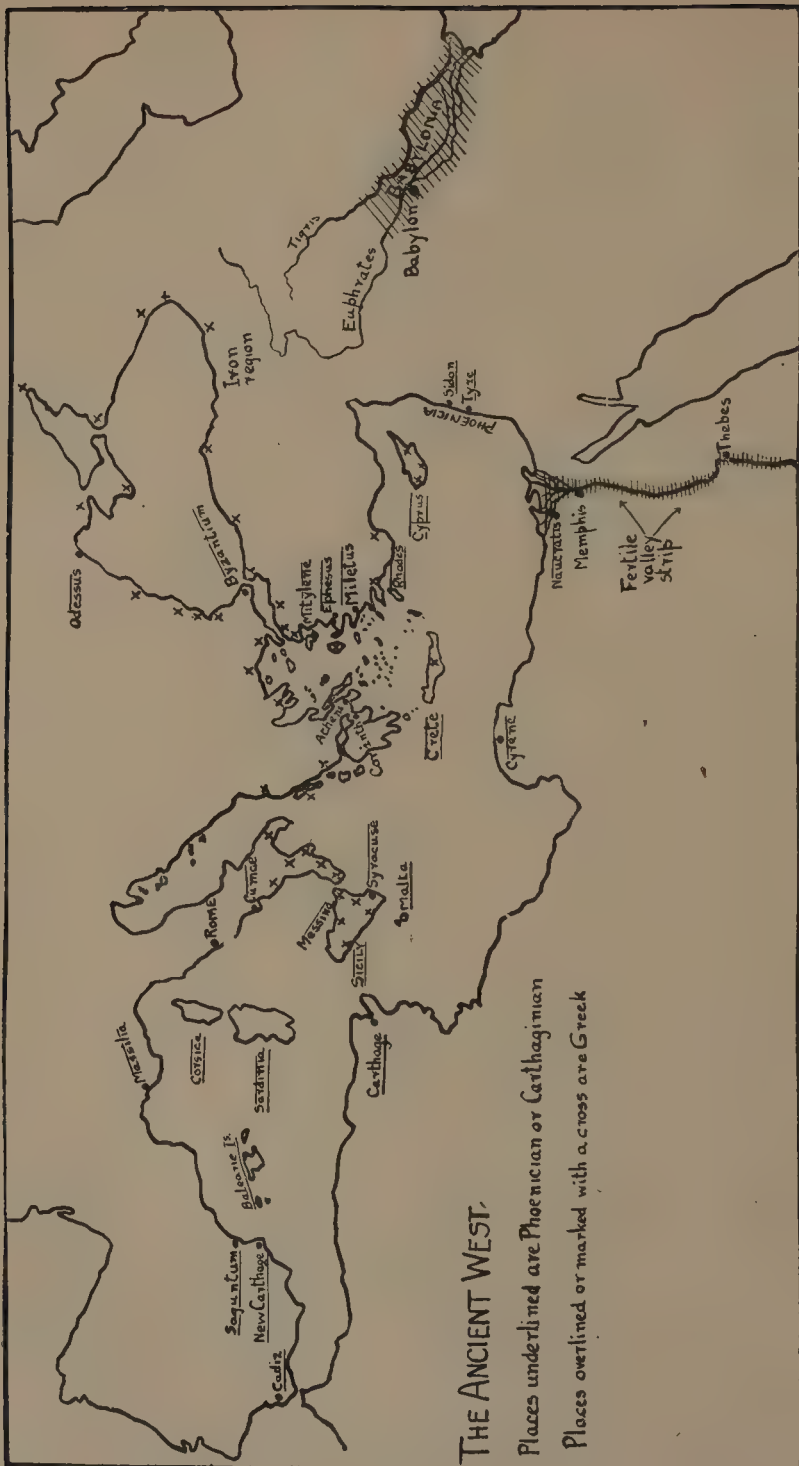
tribes of people migrated from Asia or Asia Minor, bringing with them knowledge of how to handle cattle, cultivate crops, extract minerals, make pots, and use tools. Meanwhile traders from the eastern end of the Mediterranean pushed westward by sea, going as far as the Strait of Gibraltar or the north shore of the Black Sea, seeking the minerals, furs, and amber of Europe, and giving in exchange some of the products of their own lands. Thus, by a mixture of migration and trade, backward Europe learned many lessons in production and trade.

**Early Sea
Traders**

The early traders who went to Europe may have been Egyptians, but we cannot be sure. For a long time (2500–1500 B.C.) they were probably Cretans.

The island of Crete was well situated for trade with Egypt, Asia Minor, the Black Sea, Greece, and Italy. It had good forests to supply lumber for ships, while its soil and climate were suitable for growing fruits, olives, and grapes. For a long time its inhabitants were the middlemen of the eastern Mediterranean. But eventually they seem to have been beaten and wiped out by enemies from Greece and Asia Minor.

Their place as traders was taken by the Phoenicians, who had probably wandered out of Arabia, that home of nomadic tribes, and by 1500 B.C. had settled on the narrow coastal strip of land north of what we call the Holy Land. This strip was rich in timber—the cedar and cypress of Lebanon—and had some minerals ; but it was of little use for cultivation. It was also splendidly located for trade, by land to the east, north, and south, and by sea to the west. The Phoenicians therefore



THE ANCIENT WEST.

Places underlined are Phoenician or Carthaginian

Places overlined or marked with a cross are Greek

exploited their timber and copper, and took to commerce. At first they may have acted as middlemen between Egypt and Babylonia, taking the goods of the one to the other, and supplying each with the lumber and minerals of Phoenicia. But soon they turned to the sea and Europe. They built better ships than had ever sailed on the tideless Mediterranean, and used sails as well as oars. Venturing farther and farther west, they eventually came to the waves and tides of the Atlantic.

The Phoenicians gathered goods from every known part of the world. From the east they secured the fine wares, spices, etc., of Asia; from the west they obtained the metals—copper from Cyprus, iron from Asia Minor and Elba, silver, gold, and copper from the Balkans and Spain, and tin from Brittany and Britain—the amber from the coasts of the Baltic Sea, and the furs from northern forests. On the north coast of Africa they collected Egyptian produce and the ivory, gold, and ostrich feathers which had come by caravan across the Sahara from Central Africa. But while they exchanged other people's wares they added their own manufactures. From the workshops of Tyre and Sidon there went fine linen and purple raiment, glassware, and richly designed metal plates or drinking vessels. We can well imagine how these articles dazzled the eyes of the Greek, Spaniard, and early Briton, and how a little luxury purchased a lot of tin, silver, or lead.

The Phoenician was thus merchant, manufacturer, navigator, shipbuilder; he was also a colonizer. As he pushed along the Mediterranean he planted a string of trading stations—in Cyprus, among the islands around Greece, and later as far west as Sicily, Sardinia, the



Phoenician Traders in Britain.

It is not certain that Phoenicians went as far afield as Britain.

(From the painting in the Royal Exchange, London, by Lord Leighton.)

North African coast, and Cadiz in Spain. At these ports of call he picked up the products gathered in from the surrounding country, and tried to prevent other traders from getting them. One of these colonies, Carthage, became very powerful and famous. It was situated on the north coast of Africa opposite Sicily, and by capturing that island it stood astride the middle of the Mediterranean at the narrowest point. It was therefore able to resist any rivals who wished to enter the western Mediterranean and to make that half of the sea a Carthaginian lake. It gained control of the mineral output of Spain, sent its boats out beyond the Strait of Gibraltar to gather in the wares of Atlantic Europe and Africa, while caravans from the Sahara brought to Carthage the goods of Central Africa. Merchants from Tyre and Sidon fled to Carthage when their home towns were threatened by attacks from Persia, and brought with them their old skill and resourcefulness. Hence Carthage dominated the western sea and the lands around it until Rome rose to challenge and eventually destroy her.

Greece,
1000-300
B.C.

We usually think of Greece as a land of sculptors, dramatists, philosophers, orators, and warriors ; but " the glory that was Greece " had a commercial foundation, for the country could live and be wealthy only by producing and trading. The Greeks were a pastoral people who came down from the Danube regions, but when they entered the mainland peninsula they found themselves in a trap. They had come into a land of small islands or of narrow valleys divided by steep mountain ranges ; there were no big

areas on which they could feed large flocks and herds, and few patches capable of easy cultivation. They had to make the best of a bad job, so they learned to terrace the hillsides and plant vines and olive trees ; wine was for them what tea or coffee is for us, and olive oil took the place of our butter. On the mountainsides was room for some goats and sheep ; underground lay some deposits of silver, lead, and copper, while in the shallow waters around the coasts were abundant supplies of fish.

Such conditions made commercial activity essential. Hence, while at first the Greeks were willing to hand over their surplus goods to Phoenicians who came to their ports and islands, they eventually learned to do their own trading, build and navigate ships, establish colonies, develop manufactures, and devise a currency that brought coined money into general use.

Greek trade was almost entirely sea trade. The ranges made land traffic impossible ; " the land divides, the sea unites " in Greece. Although the Greek came originally from the land areas of the north and was a " landlubber," he soon took like a duck to the water, and steered his vessels to every part of the Mediterranean and the Black Sea. Eventually he organized shipping services to the more important ports during the summer months, with regular freight and passenger fares. Trading companies were set up, insurance was highly developed, while the temples and private banks lent money and did a regular banking business.

At first the exports were chiefly food and raw materials, such as oil, honey, wine, metals, and marble. But as Greek skill and craftsmanship developed, the export of manufactured wares became very important.

Corinth became famous for its pottery, Athens for vases and bronze or marble statuary, Miletus for rich woollen fabrics, Ephesus for silverware. So successfully was this trade fostered that eventually the ancient world, once dominated by Oriental culture, was "reading Greek books, using Greek utensils, fitting up its houses



A Greek lady being measured for a pair of shoes.

(From an Athenian vase.)

with Greek furniture, decorating its house interiors with Greek paintings," and wearing Greek fabrics. In return, that world supplied Greece with the things she could not produce for herself—wheat from the Black Sea, Sicily, and Egypt, gold from the Urals, timber and iron from Asia Minor, metals and wool from Spain, silk, cotton, and precious stones from the East, linen and papyrus from Egypt, ivory from Central Africa, and tin from the "Tin Isles," *i.e.* Britain.

Greek trade flowed from a large number of independent city states. History, and still more geography, prevented Greece from becoming a united nation or even a federation of states such as Canada or the



Loading a Greek ship. Weighing and stowing the cargo.

United States. The city, with the land around it, was the state, small in area and population, and fenced off by mountains or the sea. The home market was therefore usually small, and the home supply of food-stuffs and raw materials might be inadequate. If

merchants and manufacturers were to expand their business beyond a certain point, and if the state was to get the supplies it needed, foreign trade must be developed. But in that trade there was keen rivalry between the merchants of the leading states, and this rivalry helped to make political relations bitter. It led to trade wars, and prevented the states from standing shoulder to shoulder when the country was menaced by great imperial powers from the north or east. Inability to unite or co-operate finally led to the loss of Greek independence.

The Greeks, like the Phoenicians, established colonies. But the Greek colony was usually more than a warehouse and trading-post. It received the surplus population of the parent state, and as these settlers developed agriculture they shipped their surplus to the parent city. On the north shore of the Black Sea they taught the natives how to grow wheat and made the Black Sea area a Greek granary. Between 750 and 550 B.C. hundreds of colonies were founded, and while many of them remained small and insignificant, some became important industrial and commercial communities, which in turn sent out bands of colonists. The Greek settlements were thickest in Sicily, South Italy, and around the Black Sea ; but they were also found as far apart as France, Spain, or Corsica in the west, and the mouth of the Nile in the east. As one Greek said, they sat round the Mediterranean like frogs round a pond.

Between 400 and 300 B.C. the Greek
Rome city states lost their freedom and were
absorbed—along with Asia Minor, the
Levant, and Egypt—in the Macedonian Empire. Their

industry, commerce, and culture survived, and dominated this eastern Mediterranean empire. By that time a new European power was rising, this time in Italy. Rome began as a republic of self-sufficing farmers led by a body of aristocrats. The farmer tilled his land with the aid of a few slaves; he fought in the legions when necessary, and then went back to his plough. Industry was primitive, commerce small, and the petty Roman merchant found it hard to make much headway against the competition of Greek and Carthaginian rivals.

Between 500 and 250 B.C. Rome made herself mistress of the Italian mainland, and looked for more worlds to conquer. This meant crossing swords with Carthage, mistress of the western Mediterranean. By 146 B.C. three wars had been waged between the two powers. In the first Rome pushed Carthage out of Sicily; in the second she drove her off the sea and out of Spain; in the third she destroyed the city of Carthage itself and took much of North Africa. Once started on this career of foreign conquest, Rome found it hard to stop, and since there was no strong power to bar her path, she eventually spread her rule over an empire which stretched from the Caspian and Red Seas to the Atlantic, and from the fringe of the Sahara to the Danube, the Rhine, and the Tweed.

This vast empire—covering the southern and western third of Europe, the northern strip of Africa, and a bit of Western Asia—was made into something approaching a great free trade market. There were no high tariffs to prevent goods from going from one part of it to any other. The Roman roads, built to facilitate the

movement of troops, made travel and the carriage of goods much more easy, while the suppression of piracy at sea and of highway robbery on land made them much safer. Uniform currencies, uniform weights and measures, and the application of Roman law all helped trade between different parts of the empire. Finally, for almost two centuries (up to about A.D. 200) the empire enjoyed comparative peace. There were wars against foreigners on the frontier, and occasional outbursts of civil strife; but in general the area inside the empire was more peaceful than it had ever been before or has been since.

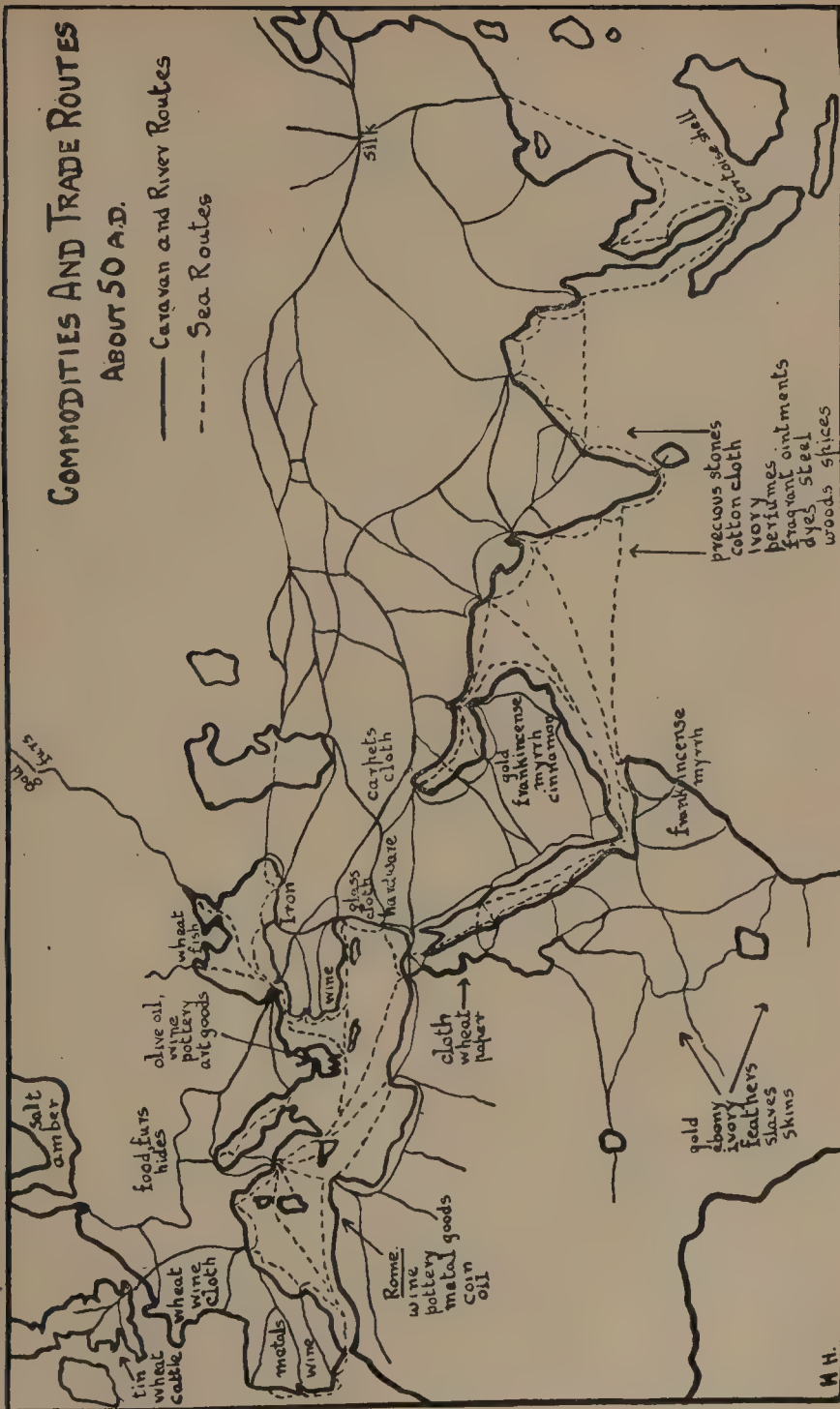
During those two centuries the economic activity of the ancient world came to a head. In backward areas along the western fringe of Europe the Romans encouraged agriculture, mining, and industries, in order to supply the needs of the garrisons, the towns which governed the provinces, or the empire at large. In England wheat, wool, tin, and lead were produced in greater quantities. In Gaul (France) agriculture and industry made much headway, while the wool and metals of Spain became more important than ever. In the south, Sicily, North Africa, and Egypt produced large crops of grain, which were sent to provide cheap or free bread for the people of Rome. In Greece, Asia Minor, Alexandria, and the towns of the Levant the skilled craftsmen continued to pour out their fine wares, and the eastern traders could roam safely over the whole empire. The towns which dotted the imperial map needed aqueducts, forums, baths, barracks, and other public buildings, and the construction industry became important. Finally, while the various parts of the empire traded with each other and with

Rome, there was some trade with the barbarians who lived beyond the northern frontier, and much trade with Asia. The map on page 37 shows the commodities contributed by each area, and also the land or sea routes by which they travelled.

We must beware of exaggerating the importance of all this trade, and remember that probably the greater part of the wants of the day were met by usuculture and usufacture. The peasant who had easy access to some market sold grain, wine, olive oil, wool, etc.; but even he produced many of the things he consumed, and many peasants probably were too far from markets to be able to sell anything. The great landlords might operate large cattle ranches, grain farms, olive-groves, and vineyards, with slave labour or with the aid of tenants who paid their rent by working part of each week on the landlord's farm; and a landlord who sold produce in the market would be able to buy farm or workshop products. Yet even the most commercially minded landlord produced much that he consumed, and among his household servants or slaves he had clothmakers, tailors, builders, carpenters, metal workers, and others who kept the house supplied with the things it needed. Transportation was still slow and costly; containers in which wine and oil could be carried were not easily or cheaply made; ships were small in size and poor in construction. Hence the volume of trade was only a small part of the total production; much of it was local rather than long-distance, and the latter was largely confined to goods which were small in bulk, were high in value, or did not deteriorate during long journeys. It is only in comparison with the earlier centuries, and with those

COMMODITIES AND TRADE ROUTES ABOUT 50 A.D.

— Caravan and River Routes
 ---- Sea Routes



which followed, that the volume of trade during the period of the *Pax Romana* seems very large.

After about A.D. 200 this peace ended, as the empire became increasingly worried by attacks on the frontiers and by civil war inside them. Rival emperors fought each other ; only one out of twenty-nine of them died in bed during the space of seventy years. The armies which they led were largely composed of men from the provinces or of barbarians, who were kept loyal by being given good wages or by being allowed to plunder the countryside and the cities. Roads became unsafe, pirates returned to infest the sea, and life near the frontiers became insecure. Government thus became bad ; but it also became more expensive. The cost of the court and the army grew, and was met sometimes by debasing the currency but more usually by placing crushing tax burdens on the population, especially on the industrial and trading classes in the towns. Hence trade was injured doubly : its conduct was faced with dangers and obstacles, and a growing part of its profits was taken from it by plunderers and tax-collectors. It therefore shrank, and in some places it almost (or quite) disappeared. On the frontiers trade suffered when garrisons were withdrawn, or when a provincial seat of government was abandoned. But the main reason seems to have been that trade will flourish only when it can be conducted safely and profitably, and in the later centuries of the Roman Empire this was no longer possible.

The decline of towns and trade was most marked in the western half of the empire. The eastern half was much richer, thanks to the natural resources, skill, and experience which existed there. Consequently, when

the capital of the empire was shifted to Constantinople (A.D. 330) and the empire was later cut into two halves with two emperors, the Eastern Empire kept the rich parts and let the poor areas go. It had its troubles on the frontiers, was attacked by Slavs, Persians, and Arabs, and eventually lost Egypt and the Levant. It had periods of internal strife and of wretched rule. But it often had capable emperors, who reformed its government, strengthened its army and navy, put its law and currency into good order, and gave it a new lease of life. Constantinople stood astride important land and sea trade routes, and its large population was a great market for those who made and sold goods. It became by far the largest city in medieval Europe, the centre of active industry and bustling trade, and ruler of the rich remnant of the old empire.

In the west, towns and trade did not completely disappear. The Germanic tribes who swarmed over the various provinces during the fourth to sixth centuries were not all wild, primitive destroyers. They knew much about Roman ways, and liked some of them. Hence, while there was some fighting and much destruction, the new-comers did not sweep the whole Roman legacy aside. Some towns carried on, some industries continued, some trade flowed along the old routes; money did not entirely disappear, and some people produced goods for market. But all these activities were now much smaller than they had been, and as the old unity was broken up economic life became more rural, local, and self-sufficing. People produced more for their own use, and much agriculture reverted to usuculture. When the imperial government no longer protected, ruled, and judged its subjects, the

landlords who owned great estates (*villas*, as they were called) became the protectors, rulers, and judges of the people who lived on their land ; thus they became lords as well as landlords. Some of these Roman aristocrats were pushed aside when the Germans came, and their great estates might be taken over by some fighting chieftain or tribal leader, who continued as lord and landlord of the native population. Sometimes the tribes settled on empty land and there began to cultivate the soil under their chiefs. But on the old *villas* and the new settlements alike, Western Europe had become the home of a predominantly rural society, ruled by local lords, working to meet local needs, and having little contact as buyer or seller with the outside world. The Roman free trade area had been bisected, and one half had been broken in pieces.

Supplementary reading.—Heaton, *Economic History of Europe*, chaps. 2-4 ; Knight, Barnes, and Flugel, *Economic History of Europe*, chaps. 1-2 ; Day, *History of Commerce*, pp. 6-30 ; Marvin, *The Living Past*, chaps. 2-6 ; Arragon, *The Transition from the Ancient to the Medieval World*. Each of these books contains lists of reading for more detailed study. The *Encyclopaedia of the Social Sciences* has good articles on hunting, migrations, nomads, slavery, the Roman World, and *latifundia*.

CHAPTER III

THE MIDDLE AGES, 500-1500

BY A.D. 500 the Roman Empire had fallen to pieces in the West. By 1500 Columbus, Cabot, and Vasco da Gama had discovered a new world and a new sea route, printing-presses were at work, gun-powder was being used, new ideas in literature and science and art were exercising men's minds, and the Reformation was just round the corner. These thousand years comprise a period we call the Middle Ages—the period between the ancient world and the modern. When it began, the Germanic tribes were still rambling over Western Europe, but in places were settling down; when it ended, their descendants were beginning to ramble over new continents. When it began, the structure of Mediterranean trade, built up by Phoenician, Greek, and Roman, was crumbling and cracking, especially on the western edges; when it ended, trading enterprises were being inaugurated which were to build up a structure of world trade. In 500 the Mediterranean was the centre of European affairs; in 1500 that centre was moving to the Atlantic and the North Sea. In 500 the Eastern Empire was economically mature, Italy was comparatively young, and the western and northern areas of the Continent

were in their infancy. By 1300 Italy was economically grown up, and had graduated after learning practically all that its eastern masters could impart ; by 1500 the North and West had learned so much about agriculture, industry, and trade that they were at least ready to leave high school.

We do not know as much as we should like about the first five hundred years of the Middle Ages ; there are some great gaps in the records, and the picture does not become reasonably clear in all its parts until at least A.D. 1000. Nevertheless we know something about some people and movements during these " Dark Ages," and about the way medieval Europe was being built up.

The first builders were the Germanic peoples—Goths, Franks, Angles, Saxons, Lombards, etc.—who had been filtering into the empire long before they began to move in a body over a frontier that had disappeared. They went westward into France, the Low Countries (Belgium and Holland), and England, or moved southward into Spain, North Italy, and North Africa. In the swamps, forests, and plains of their old home they had been hunters, fishers, and herdsmen, but had done some farming, some simple manufacturing, mining, and metal working, and a fair amount of fighting. In their new homes they carried on these occupations, but since the soil and climate were more congenial than those they had formerly known they gave more attention to tilling the soil and to caring for live stock. Tribe sometimes fought tribe, leaders became kings of the land as well as of the people, a class of nobles grew up round the monarch and received land from him in return for its assistance in war or in

government. Sometimes the nobles defied and dethroned a weak king, sometimes they fought each other.

The second builders were the Norsemen of Norway, Sweden, and Denmark. Their land was poor for herding or tillage, and they had to rely on the forests or the sea for a livelihood. As population increased their country became overcrowded, and many Norsemen therefore went out in their long ships to plunder, to trade, and to settle elsewhere. They sailed as far as Iceland and North America; they plundered the coasts and estuaries of the North Sea, English Channel, Bay of Biscay, and Irish Sea; they settled in England, Ireland, and Normandy, and even went as far as Sicily. But these raiders easily became traders; eventually they did much to foster trade between the coastal areas of North-western Europe, and in addition took furs and amber through Russia to the Black Sea and Constantinople. If the Germans were the country-dwellers and farmers, the Norsemen were the sailors and traders.

The third builder was the Church. As Christianity spread among the people of the Roman Empire and then among the barbarians, the Church was given grants of land, and became the largest landowner in Europe. Monasteries were set up in remote places and became centres of settlement of farmers and craftsmen. Towns grew up round shrines, abbeys, cathedrals, and bishops' palaces, and the churchyard or church door was often the birthplace of a market or fair. Sometimes monks worked their own lands, but often they employed peasants; usually the farming methods on abbey lands were more efficient than those practised

elsewhere, and great quantities of grain, wool, wine, and hides were sent to market. Finally, the Church gave refuge in times of tumult, kept education alive, and sought to restrain the fighting tendencies which made life so unsafe and labour so fruitless.

The fourth builder, the Moslem, is at first sight rather a destroyer, for the disciples of Mohammed built up their great empire by using plenty of force. They began their work about 630, and within a hundred years their empire stretched from India and the borders of China to Spain ; it included the Levant, Egypt, and North Africa, and later added most of the large islands in the Mediterranean. The Moslem was always ready to fight ; he did not like Christians, and they disliked him. Consequently, when he gained control of North Africa and of Sicily he could cut the sea routes between Western and Eastern Europe, and injure commerce, just at a time when the Norsemen were playing havoc with trade in the North Sea. He did not, however, spend all his time fighting, and proved to be a very efficient man of peace—as farmer, artisan, and trader. His empire included the Asiatic lands which were famous for their products and industrial skill, and he transplanted some of these products and of this skill from the eastern end of the Mediterranean to Sicily and Spain. He developed irrigation in Spain, and introduced the cultivation of rice, oranges, sugar cane, strawberries, roses, asparagus, and spinach. He reopened silver and iron mines, made fine swords, and built up textile and hardware industries. He traded far and wide ; the *Arabian Nights* gives a picture of his life and work. His wares were far better than those made by Christian craftsmen, as the Crusaders dis-

covered when they fought him. Finally, he was the best educated man of his day, interested in philosophy, mathematics, medicine, and science.

The fifth builder was the Eastern Empire, home of highly developed industry and commerce. Although that Empire had let the West go, it did not forget it, and at times tried to retake some of it. Meanwhile traders from Constantinople and other eastern cities went westward, as far as Paris and Bordeaux. They peddled spices, silks, precious stones, crucifixes, fine cloth, weapons, and other small but valuable wares, visited towns, fairs, courts, and abbeys in search of buyers, and took back metals, furs, and even slaves.

The last builders were the Italian cities. Some of them may have decayed, or have been destroyed—when the Empire broke up, when the Germans attacked them, or when the Moslems raided them. But some of them came back, such as Amalfi, Pisa, and Genoa, and one or two new ones grew up, such as Venice. Their citizens developed sea trade with North Africa, the Levant, and Constantinople, and then carried or sent goods overland through the passes of the Alps to France, Germany, and the Danube Valley. Venice, which became the chief of these cities, was founded (A.D. 452) on mud flats at the top of the Adriatic by refugees who were escaping from the fury of Attila and his Huns. The Venetians caught fish and produced salt, which they took up the rivers of North Italy and through the passes of the Alps. They began to build ships, and went to sea. In their holds they took the metals they had gathered from inland miners, and also the slaves they had captured or bought in the Balkans.

They exchanged these wares for the goods of Constantinople, Egypt, and Asia, and thus became the middlemen of Europe. Further, they learned how to make some articles, such as good cloth and fine glass. By 1100, Venice was well on the way to commercial and industrial greatness.

**The
Medieval
West**

By 1000 or 1100 the work of these many builders was taking shape in a civilization which was predominantly rural in the north and west, but displayed a better balance of town and country, of agriculture, industry, and trade, in the south and east. Let us look first at the economic life of the west and north, and note three of its distinctive features.

In the first place it was rural. In the words of a famous Belgian scholar, "we shall probably not be far wrong in supposing that in the whole of Europe between the twelfth and fifteenth centuries the urban population never comprised more than a tenth part of the total number of inhabitants." (Pirenne.) Yet by that time town life had grown much, so the rural fraction was probably larger than 90 per cent in earlier centuries. The overwhelming majority of people lived and worked on the land, gathered together in villages or hamlets, scattered in lonely huts in the forests and on bleak pastoral uplands, or nestled in tiny fishing communities on the coasts.

In the second place it was a predominantly self-sufficing society, practising usuculture—or "subsistence farming," as it is sometimes called—rather than commercial agriculture. There was nothing fixed or sacred

in this. If there was no market available, there could be no sale; but if, when and where a market was accessible, the farmer might turn his attention to the production of goods for it, if he found it worth his while. Prior to A.D. 1000 there were probably few markets accessible; but after that date the rise of towns and the growth of the textile industry offered better opportunities to farmers who were within reach of the towns or could get their wool away. Till then, we shall not be far wrong if we think of the typical farmer as one who produced goods to supply his own wants and those of the people who depended on him. Even at the lowest ebb, however, trade did not disappear completely, especially since there were some commodities which the village could not produce and must obtain from the few places where they could be secured. Iron must be imported from the regions which had iron ore, so that the blacksmith could make shoes for horses and oxen, ploughshares, or tips for the points of wood ploughs. Salt was needed when the peasant killed the animals for which he had no winter fodder and prepared his winter's stock of salt beef or pork. Tar from Norway was the best dressing for sheep scab; the stone of Northern France excelled all others for millstones, and some inland villages might have no local supply of fish for fast-days. Even the most isolated village needed some of these things; but the amount required was small, and the annual supply could probably all have been loaded on one or two wagons.

In the third place, medieval society was, like that of nearly all other ages and areas, divided into *classes*, three of them—the nobility, the Church, and the peasantry. At its head might be a king, who was ruler,

judge, warrior, and landlord-in-chief. Below him were the great nobles, who helped him in his judging, ruling, and fighting, and received much land from him. Below them were lesser nobles, with smaller estates, which they received from the great nobles, whom they helped. There might be still lower ranks, but all were held together in a common class, with similar rights and obligations. The Church also had its different divisions and layers, but all held land and all had a special task to discharge. At the bottom of the scale were the peasants, some free and some serfs, some with enough land to occupy all their time, others with insufficient to yield a livelihood. By a nice division of labour each class had its work to do : the king and the nobles protected the country from attack, made laws, administered justice, and kept order ; the Church looked after the spiritual life of the people, and helped men to save their souls ; the peasants worked, tilling the soil and providing the foodstuffs, raw materials, and manufactured articles needed by themselves and by their lords and masters. Thus some ruled and fought, some prayed, and some worked.

All had to live on the land and draw their income from it. Since there was little or no trade and little money in circulation, the king could not collect in taxes sufficient money to buy food and clothing, pay judges and soldiers and civil servants, and run the state. There was little money to put into the collection-box to keep the priest, and little available to pay the landlord a rent which he could then spend to buy his necessaries, comforts, and luxuries. All classes must keep close to the soil and live on what they got from their particular piece of it. But the peasants must do

all the work on that soil, while their masters were about their proper business.

Let us look at the peasants at work.

The Manor Most of them lived in villages, or *manors* as they were called in England. The village consisted of a cluster or string of peasants' cottages, a church, flour mill, blacksmith's shop, probably an oven and a brewery, or a winepress if the village was in Southern France. Some distance away from the cottages would stand the manor house, in which the landlord or his representative lived. It might be a mean, shabby group of buildings, but if it was one of the homes of some great bishop, noble, or king, it might be a large strongly-built castle or palace, with shops or sheds in which all kinds of workers made the armour, weapons, clothes, wine, bread, and other things needed by the members of the household. The rest of the village consisted of ploughed lands, of meadows, and of great open commons on which the villagers' live stock were turned to search for food. Beyond lay an expanse of woodland, waste, swamp, moor, or hill, stretching away to the borders of the next village.

Some of the village land was retained by the landlord as his *domain*; this domain might consist of a park round his house, some separate arable fields, or part of the general plough-lands. The rest of the land was in the hands of the peasants. But the landlord did not cultivate the domain himself, either with the aid of slaves or of hired labourers. Instead, he said, in effect, to the villagers, "You till my domain for me, gather my harvest, look after my live stock, keep me

supplied with firewood, help me when I want a building erected or repaired, and stir up the game when I have a hunting party. All this will mean that each of you has to come and work for me two or three days each week, and give me a little overtime at ploughing, haymaking, or harvest. In addition to these *labour services*, you will give me some wheat, eggs, bread, meat, or ale at fixed times, and a penny or two in money each year. You will use my flour mill, oven, or winepress, and pay me a fee in bread, flour, or wine. You will pay me a few pennies when your daughter marries, especially if she weds some one on another manor, since that will reduce our local labour supply ; and you will also pay me if any boy of yours goes off to become a priest, since I lose some more labour. You will be subject to my court, and pay me any fines that are inflicted on you for misbehaviour. You will pay me taxes occasionally, and when you die I can claim your best beast as death duty, and your heir will pay an inheritance tax. In return for these things, I will let you use the rest of my land ; by working it you will be able to provide for your own needs and also for the produce you have to give me."

Actually, of course, no such conversation ever took place, and no such bargain was struck. The landlord was lord of those who dwelt on his land, and could command them to do as he wished. They were mostly serfs, bound to the soil, unable to go anywhere else (except by running away), subject to the lord's orders and the lord's justice. Yet in course of time the relation between the lord and his serfs did become a kind of contract, the terms of which were fixed by custom, and were virtually unalterable. The serfs had certain

recognized obligations to provide the lord with an income, and in return they had a right to the land. If the serf was bound to the soil, the soil was bound to the serf, and could not be taken from him so long as he paid the customary rent in service, goods, and money.

In the intervals of working on the lord's domain the villagers looked after their own land and live stock. Some of them had about thirty acres of arable land, but others had only a few. This land was not all in one solid block, as is the case to-day, with a fence or hedge round it. The arable land of the village was divided into a number of large fields, which, in turn, were cut up into long narrow strips, possibly an acre or half-acre in area. A peasant's arable holding would consist of a number of these strips scattered all over the fields. In the illustration on page 53, Farmer No. 1 has thirty pieces of land in the two fields, while Farmer No. 2 has fourteen; and there were other fields not shown on this map. Even as late as the 18th and 19th centuries this strip system survived in many parts of Europe, as far east as Russia, and we know of people in 1800 who had 166 acres in 217 strips, 80 acres in 164 pieces, and 2 acres in 6 fragments. Between the strips lay a *balk* of unploughed land, and the fence which surrounded the whole field was opened after harvest so that the cattle could graze on the stubble.

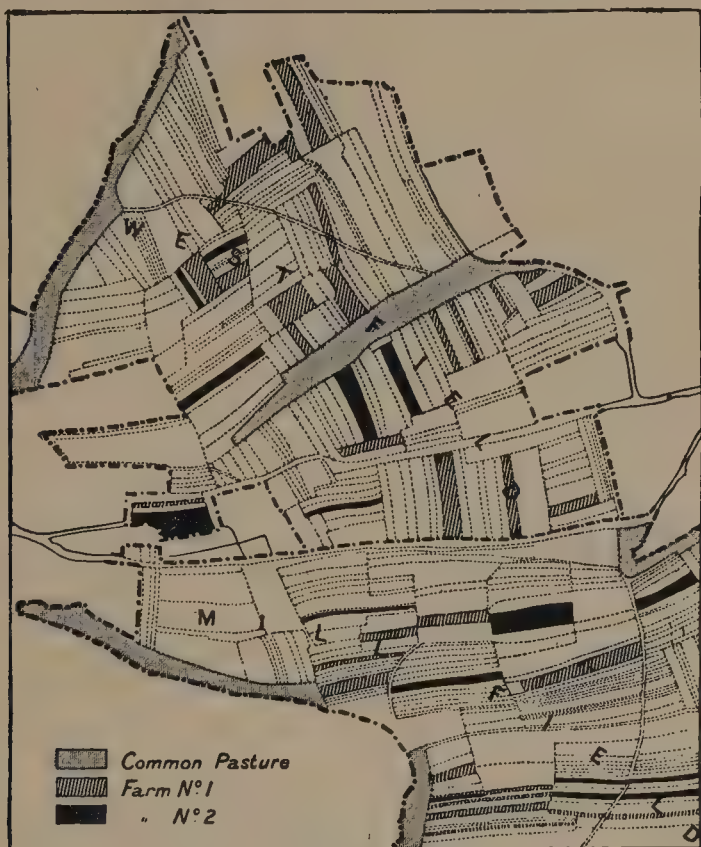
On these strips the peasants grew their crops. Usually they divided the fields into three groups; on any one they grew wheat or rye—the bread crop—in the first year; barley—the drink crop—in the second year; and they left the land fallow, so that it could recuperate, in the third year. In addition to

the arable lands, there were meadows, from which the hay was cut and shared out among the villagers, and open common pastures—the village green—on which poultry and cattle roamed and grazed. On the waste or in the woods the sheep wandered and the pigs searched for nuts and acorns.

To us this “ mingle-mangle ” of strips, fallow fields, and common pastures may seem very uneconomical. The waste of land in balks, footpaths, and fallows was great, and the waste of time in getting from one strip to the next might be equally great. When all the live stock were mixed together on the common pastures, careful breeding was impossible, and the spread of animal diseases was easy. But the fact that the system survived in some places for at least a thousand years suggests that it must have satisfied most people, and was the best method that could be used in the prevailing state of knowledge and equipment. With medieval equipment and knowledge, and without an adequate supply of manure, much hard work was required to produce meagre returns. In good years the harvest might give the peasants a surplus ; but in poor years—and they were many—it gave them scarcity or even famine.

If population grew, more land had to be cleared and ploughed, or the surplus people must overflow elsewhere. Some of them ran away to the growing towns. Others went off to start a new village on the frontier, and kings or nobles who had conquered or been granted new territories might transfer serfs or invite settlers to come and help them break the new ground. Monasteries which were established in remote regions might induce settlers to come to them, and thus expand the

area of farms, vineyards, and ranches. In the 12th and 13th centuries the area stretching from the River Elbe to beyond the Vistula was captured from the



A typical "strip" division of open fields.

Slavs by kings and nobles from Western Germany, and was settled by monks and farmers from the west. In medieval Europe settlers went eastward, just as in modern America they went westward.

Meanwhile the villages which were left behind

carried on with little change, *unless* something happened to pull them out of their quiet self-sufficiency. Many of them were still isolated and self-sufficing in the 18th century, and even in the 19th. But not by any means all ; for the stream of industry and commerce which began to flow in increasing and uninterrupted volume over parts of Western Europe after about 1000 had far-reaching effects. Villages near the growing towns felt the stimulus to increase their output or to specialize on produce which they could sell to the townsmen. The farmers of North Italy, of the Rhine Valley, and of Belgium were particularly affected by town demands, since the growth of towns was most marked in those areas ; but as transportation facilities improved, some farmers could send their produce to quite distant markets. English, Scots, and Spanish wool was taken to Italy, French wine was shipped to England and Scandinavia, and grain from the Vistula valley was sent down-stream, and then loaded into ships which took it out of the Baltic to a market in Belgium. In order to have more time to spare for producing these goods, some serfs persuaded their landlords to accept money in place of labour services, and were thus able to devote all their days to their own holdings. Some of them were so ambitious or successful that they rented land from other farmers, employed hired labour, and became large-sized producers. Similarly, some landlords, especially some of the monasteries, organized production with an eye on the market. Thus in a variety of ways the growth of industry, trade, and towns affected those parts of the countryside which were within its reach. To that growth we must now turn.

**Medieval
Industry**

Much medieval industry, probably most of it, was usufacture. The villager spent part of his time preparing his farm products for eating and drinking, or making simple articles of wood, clay, leather, wool, or flax ; and the home of the lord was often a hive of industry. But both the peasant and his master soon came to depend on special workers for certain processes or products. These workers had tools and equipment which the ordinary jack-of-all-trades would not own, such as the anvil, chisels, hammers, and furnace of the blacksmith's shop ; and they also had acquired greater skill than the amateur could hope to possess. They therefore concentrated on one kind of task, and spent most or all of their time working as weavers, dyers, millers, smiths, carpenters, bakers, brewers, tanners, etc. They might work on material belonging to their customers : the miller ground the villagers' grain and charged them a fee for his services ; the weaver might make into cloth the wool which the peasants had shorn from their own sheep, had washed, dyed, carded, and spun into yarn ; the tailor might make a coat from a piece of cloth brought to him by his customer ; the baker might bake the dough which the housewife had already kneaded. The relics of this practice still linger, when a woman buys a piece of cloth and either takes it to a dressmaker or invites the dressmaker to her home ; and a few men still buy the cloth for their suits, and then take it to a tailor. But as time went by, the craftsman became accustomed to buying his own material, making it up, and selling goods, not services.

These skilled sellers of services or goods needed a fairly large market to keep them fully employed. To

get enough work they might have to go round, with their pack of tools or products on their backs, from house to house, or from one village to the next. Some of them, therefore, lived a wandering life; the weaver might arrive in a village, and in each peasant's home would weave into cloth all the yarn that the women of the house—the spinsters—had prepared for him. When there was no more work left for him he would pass on to the next village. But in a large village, and still more in a town, there would be enough work to keep him busy, and instead of wandering about he would set up his workshop, to which his customers came to have their materials worked up or to buy the goods he had made for sale. Some workers could not wander round with their equipment, because it was too big, *e.g.* the baker, the miller, the dyer, and the blacksmith; the customer must come to them. So we find an industrial class growing up, wandering or settled in workshops, working on customers' materials or on materials which it has bought in order to make up and sell.

Much of medieval industry was of this kind. The producer and the consumer lived in the same village or town, or the producer lived in the town and the customer in a near-by village. The craftsman sold his labour or goods direct to the consumer; he retailed them in small quantities, and so has been called a *retail craftsman*. His business was usually small. His workshop might be above or behind his shop, and both might be part of his house. His wife and children helped him; he might be training a young man as apprentice, and if he was a relatively large producer he might employ a journeyman, *i.e.* a wage-earner, or two.

The retail craftsman could easily serve the local market, because the customer was within reach. But he could not serve distant markets, since the customer was too far away and the journey too long and difficult. Further, he might not be able to serve luxury markets, for he could not afford to buy the costly raw material or to wait a long time till the article was made, sold, and paid for. Yet such markets were developing again after A.D. 1000. In the Low Countries (the Belgium of to-day) and in Italy craftsmen were making cloth, metal goods, glass, and other wares which found buyers in high or distant places. Italian craftsmen had learned some of the manufacturing secrets and skill of the East, and were producing finer fabrics of silk or wool, beautiful glass, sumptuous armour and weapons, rich carpets, and house furnishings fit for kings, nobles, the Church, and the wealthy townsmen. Cloth was being made out of British wool in Ypres, Ghent, or Douai in the Low Countries; some of it was finished and then sold in Novgorod in Russia, but some of it was sent to Genoa, was finished there, and was then sent to be sold in the Levant.

The merchants who had developed the luxury and distant trades might get their wares by buying them in the open market from the retail craftsman, who thus lost contact with the consumer, and spent all his time supplying merchants. Or they might give the craftsman an order to make the goods, and if the order was large enough the master-craftsman might need to employ a considerable number of wage-earners to help him. Or the merchant might buy the raw material, hand it over to the craftsman for manufacture, and then pay him for his work and the use of his equipment.

Or the merchant might supply the necessary tools to a man who had none, hand him the raw material, and then pay him a wage for his labour. Thus a large merchant might spend a lot of money buying the sort of raw materials he needed, have a little army of master-craftsmen and their employees working it up for him, and employ some men to work with his own equipment on his own material, all in order to be sure he obtained the quantity and kind of goods he thought he could sell. While his chief business was selling goods, he had become more or less interested in the production of them ; he had put capital into materials and equipment, and the master-craftsmen and their employees as well as his own employees were dependent on him for their livelihood. It is hard to find a label for him, but we might call him a *merchant-manufacturer*, provided we put most stress on the first word.

Some of the processes of industry might be done by workers gathered together in the merchant's or master-craftsman's workshop ; but many were done in the workers' homes on material which had been " put out " to them. The wool would be put out to be spun into yarn by women who worked at home ; the yarn which they made would then be put out to be woven into cloth by weavers who had a hand-loom in the living-room, the bedroom, or an adjoining shed. Bars, rods, or sheets of metal might be put out to be made into different parts of a suit of armour, chain links, harness fittings, etc. But such tasks as the dyeing and finishing of high-grade cloth, the building of a ship or a castle, and the mining or smelting of metals could not be done at home ; the workers must be gathered together in one spot under the supervision of an employer, working

on his materials with his equipment, and receiving wages for their labour. In these groups we have a medieval forerunner of the employees in the modern factory system ; but many of those who worked at home were also wage-earners, and at times disputes between employers and employees caused strife and violence to blaze out in medieval streets. The Middle Ages were not quite ignorant of the labour problem.

**Medieval
Commerce**

It is very doubtful whether trade died out completely in Western Europe even in the stormiest period of invasion and feudal strife ; and it is certain that after A.D. 1000 it recovered fairly quickly, as conditions of life and government became more secure and settled, as contact between east and west, or north and south became closer, and as towns grew in number and size. Its foundation was, as we saw in Chapter I., the fact that no village, town, or area could be completely self-sufficing, or that it was not worth its while to try. In the first place, differences in soil, mineral deposits, climate, nearness to the sea, the river, or the forests meant that people in any one area had plenty, very little, or none of such things as olive oil, oranges, wine, silk, wool, flax, iron, copper, fish, salt, lumber, or furs ; and no part of Europe yielded spices, perfumes, or precious stones, but Asia did. In the second place, differences in economic development produced towns in some spots, but left villages elsewhere. The towns could not feed themselves or produce the raw materials they needed ; they must therefore exchange their special industrial products for food and materials. In the third place, no industrial centre carried on all

lines of manufacture ; each had its specialties, which it sold near and far, to countrymen and townsmen ; and in return its citizens bought the manufactured specialties of other towns. Thus trade can be divided roughly into the petty local trade inside the village, carried on largely by the village craftsmen ; the domestic trade of the town, also largely conducted by the men who produced the goods ; urban-rural exchange, which might be in the hands of farmers and artisans, but might call for special traders who bought, transported, and sold the goods ; inter-urban trade, largely in the hands of merchants ; inter-regional trade, involving long journeys and a trading class for its conduct ; and inter-continental trade, which was really inter-regional over very long distances.

Many factors influenced the growth and character of medieval trade, but three are worthy of notice. The first was the existence of two large customers, the nobility and the Church. Their wants might be met in part by employing craftsmen on their premises ; but some articles could not be produced there, and some materials were lacking. The nobility wanted much equipment for war, hunting, and tournaments, and might have to buy the metal or the finished article. It wanted spices to flavour its meat and drink, and it wanted wine. It had a taste for fur garments or trimmings, for silks, jewellery, and other luxury goods. The Church also needed many of these things ; it also wanted stone, metals, jewels, fine linen and silks, incense, wax for candles, stained glass, and colours with which to decorate the walls or brighten the statues ; parchment, ink, and gold-leaf for use in

writing and illustrating books, and many similar commodities for making the House of God and the vestments of His servants as beautiful as possible. Most of these things had to be obtained by trade, and some from places as far away as Asia and Africa.

The second factor was the growth of towns. In Western Europe these grew up around a bishop's palace, an abbey, the fortified home of a king or nobleman, or a garrison placed at some easily defensible spot. Here peasants might come for refuge, craftsmen to find work, and merchants to sell goods, to winter, or to escape from violence. The bishop or lord might establish a market or fair, encourage artisans and traders to pursue their business under his wing, and generally foster the economic enterprise of the growing town. Sometimes the town happened to be favourably situated for developing industry or trade: near good supplies of raw materials, at the highest navigable point of a river, where two trade routes met, where a river could easily be forded or bridged, at the junction of two rivers, at the mouth of a mountain pass, or on a good harbour. In such cases the growth of the town might be great, thanks to the stream of commerce that flowed by, to the industries that could be developed to meet the requirements of the citizens and of export trade, and to the exchange of the town's goods for the produce of the surrounding countryside. Most of the towns on a map of medieval Europe were never more than quiet rather sleepy little places, of no importance beyond a radius of perhaps six to ten miles from their market square. But a few became important commercial, industrial, financial, and political communities, whose activities ranged over an area

stretching from Poland and the Levant in the east to England and Portugal in the west.

The third factor stimulating trade was the Crusades. These holy wars against the Moslem rulers of the Holy Land began in 1096, and were spread over nearly two hundred years. For a time they partly gained their objective, but failed to unseat the Moslems permanently. Their economic effects were important. (a) Thousands of men who went from Germany, France, and England saw the great towns, the fine buildings, and the excellent manufactured goods of the eastern Mediterranean. They developed a taste for such wares in place of the cruder products of western handicraft, and a desire for better furniture, homes, food, clothing, weapons, etc. Hence a stimulus was given to the importation of eastern products and to the manufacture of similar goods in the west. (b) The already vigorous commerce and shipping of the Italian cities was rapidly expanded. Ships had to be built to carry the armies, and these vessels could be loaded with goods for the return journey. The Crusaders paid large sums for transportation and supplies, and shipowners made great profits. The Italians demanded trading privileges in the conquered territory, and set up trading outposts there, from which they forwarded great supplies of Asiatic goods to their home ports for distribution over Western and Northern Europe. Hence the connection between Italy and Asia became closer, and Italy built up an elaborate shipping and trading organization to gather in and distribute the spices, dyes, drugs, textiles, and metal ware produced east of Suez. All these developments were already under way before the Crusades began, and would have continued even if

there had been no holy wars ; but those wars speeded them up.

Trade, however, was not solely concerned with these eastern goods or the fine manufactures of the Italian cities. As in ancient times, minerals from many parts of Europe changed hands—Swedish iron and copper, British tin and lead, Spanish iron, silver, and mercury, and German gold, silver, and copper. The forests yielded furs, lumber for ships and houses and barrels, tar, potash, and charcoal. Most farm products may have been consumed locally, but a few were carried far ; the wine of South-western France and of the Rhine Valley was sent in great quantities to England and Scandinavia ; much English wool was taken to the Low Countries, and some of it was carried all the way to the Italian textile cities. Spanish wool went to Italy ; grain grown on the frontier lands of East Prussia was sent to feed the industrial towns of the Low Countries ; and there was some sea trade in butter and cheese.

The sea supplied two of the most important medieval commodities of commerce—fish and salt. Fish was wanted for fast-days and for Lent ; dried and salted fish was a staple food of soldiers and sailors, and some fish oils, such as those of the cod or whale, were used for lamps and other purposes. Fortunately the shallow seas of Northern and Western Europe abounded in many kinds of fish, from the sardine to the whale, and coast dwellers became intrepid, daring, and hardy fishermen. Of all the fishing grounds the richest was the Sound, the narrow entrance to the Baltic Sea. Every summer the herrings moved into those waters, and were said to be so thick that “ you could cut them with a sword.”





Thousands of workers swarmed there to catch, salt, and pack them in barrels, and to send them off to markets which might be as far away as Spain and Sicily. The salt was obtained partly by evaporating brine from salt springs in Germany, but chiefly from salt water. The Bay of Biscay supplied much salt for Northern Europe, and Venice had produced salt even in the early days of its commercial advance. Since the salt was needed for preserving meat as well as for fish, the trade in it penetrated every part of Europe.

The movement of people and goods
Means of was always slow, frequently costly,
Transportation and often unsafe. The Roman roads
had been allowed to fall out of repair,
and Europe probably did not have any roads comparable to them till the 18th century. Monasteries, lords, towns, and villages might do a little to improve highways, especially when they had become impassable, and some kings tried to force their subjects to "do something." But heavy wagons could be used in few places, the pack horse was the main form of transportation, and the average speed was rarely more than a walking pace, two to three miles an hour, with twenty miles as a good day's journey. Bad roads might be less dangerous than bad men; the highway robbers were not always starving or poor, but occasionally were local nobles or their servants, who regarded the travelling trader and his wares as fair plunder. If he was not deprived of his "money or his life," he was charged heavy tolls for being permitted to use the road. This violence and extortion forced merchants to travel in armed bands, and towns, especially on the

Rhine, formed leagues to resist and repel the feudal plunderers.

Rivers were plentiful in Northern and Western Europe. Most of them were navigable in their lower reaches by small sea-going vessels, and in their upper or middle streams by small boats, barges, or rafts. But here again speed was very slow, such obstacles as shallows, rocks, or rapids were numerous, gangs of robbers haunted the river banks, and the toll-gatherer's stations might be so numerous that the traveller could see the next one ahead before he had passed out of sight of the last one. In a hundred miles journey the total tolls paid might exceed the original value of the goods.

Sea transportation improved considerably during the Middle Ages, but remained slow and full of danger. The Italians built larger ships for the Crusades and for their long sea journeys to the Levant, the Black Sea, North Africa, and Spain, using sails as well as a large number of oars; but the speed was low, much time had to be spent in each port loading, unloading, or waiting for a favourable wind, and the Mediterranean can be so rough in winter that the boats must be laid up. Hence a great galley might make only one round trip in a year, and the presence of sea pirates at both ends of the Mediterranean obliged the ships to sail in fleets, heavily armed and convoyed. Until about 1300 goods from Italy to Northern Europe went overland, but in that year the Genoese decided to send a small fleet of galleys out beyond the Strait of Gibraltar to London and Bruges. Venice met this challenge by sending a similar fleet, and from that time onward Italian vessels visited England and the Low Countries

yearly, bringing Mediterranean and Oriental goods northward, and returning with cargoes of wool, metals, cloth, hides, and other produce of Europe's north-western fringe. It took about eight months to complete the round trip, the dangers of pirates and of wreck were great, and the saving in time or cost was sometimes so small that goods continued to go overland.

In Northern Europe sea trade had been largely in the hands of the Scandinavians, but passed into those of German merchants who inhabited the towns on the coasts of the North and Baltic Seas. These men built a roomy, cheap, cargo ship, called the *kogge*, for the carriage of the bulky cargoes of fish, lumber, salt, grain, wine, and beer which they handled. The freight charges were comparatively low, for the ship cost little to build, and might carry a thousand tons of cargo. It moved very slowly, and the northern seas and their coasts were almost as badly infested with pirates as were parts of the Mediterranean. It was the danger of plunder by kings, nobles, and sea-robbers that did much to force the German commercial towns to form the Hanseatic League in the 13th century.

**Marketing
Methods**

The exchange of goods took place in many ways. Purely local trade might be a direct barter of goods between neighbours. The retail craftsman offered his goods for sale in his front shop, spread them out on the pavement, displayed them on a stall or on the ground in the market place, or peddled them round the streets or the villages. The brewer, a most popular medieval trader, had his inn. The farmer might sell entirely to villagers, take his goods into

the town market, or sell them to merchants who came round looking for supplies of grain, wool, or hides. The pedlar went round on what may have been a regular route, carrying a miscellaneous collection of small manufactured articles, such as pins, needles, purses, handkerchiefs, brooches, gloves, mirrors, combs, buckles, toys, and dice. Finally, some commodities changed hands at fairs, held once or twice a year at some fixed spot on appointed days.

We know most about the market and the fair. So long as the volume of trade was small it was good to know that on a certain day each week, or on certain days each year, buyers and sellers could come together at some recognized place and each be sure of finding the other. This focused goods on one spot and saved time. The gathering was under the protection of the lord on whose land it was held, of the town, or of the Church; its business was regulated by rules which eventually became known as the Law Merchant, *i.e.* the body of law governing commercial transactions and traders; and this law might be enforced by special market or fair courts which dealt with cases quickly without much red tape.

The main difference between the market and the fair was largely one of degree. The market was held weekly in a town, for the exchange of urban and rural products, though there might be a few merchants there looking for supplies of farm produce or of industrial products which they could take to other areas and resell. But in general the middleman was unwelcome in the market, for it was feared that if he bought goods the local population might have to go without them. One of the chief tasks of the town government was to see

that its people got their supplies in plenty at a "just" price, that they were not exploited by any monopolist who cornered supplies, that the goods were satisfactory in quality, that full weight or measure was given, and that strangers were prevented from depriving the town of its supplies. The town, therefore, issued an *Assize of Bread and Ale* to deal with these problems. It fixed the price of the staple food and drink; ordered bakers and brewers to sell only what was "good and wholesome for man's body," under pain of forfeiture of the goods; told butchers to sell only "good vytail" and not "rotyn shepe"; insisted that coal be sold by bushel measure "up hepyd"; demanded that candles "make good lyght and sufficiently well burning, not disseyving the Kinges liege people"; forbade "forestalling," i.e. sales on the roads leading to town or in the inns, insisted that all transactions take place in the open market during the proper hours, and limited the purchases of the "forener or straunger" to the amount needed for "the sustentacion of his howsehold." There was nothing new about all this; it had been done in Egypt, Greece, and Rome, and its purpose had always been the same. The town was largely, or quite, dependent on local producers for its supply of foodstuffs; the supply was rarely too great, and the fear of famine was never far away. Therefore the consumer must be protected as far as possible against famine and against being robbed by producers or middlemen.

The fair was a bigger market, held less often, devoted to wholesale rather than retail trade, and drawing buyers, sellers, and goods from a larger area. To it might be brought the surplus crop, wool clip, supply of hides, or live stock of an area which had got beyond

subsistence farming ; to it merchants brought supplies of manufactured wares from a distance, furs, Oriental produce, and other luxury goods which the local churchmen and nobility wanted. The fair ground was usually near a church or abbey, just as in ancient days it had been outside a temple ; for the Church gave sanctuary, and the worshippers who gathered together on some saint's day provided a large body of possible buyers. The fair lasted a few days, and when it was ended the traders might pack up what they had bought or had not sold, and move on to the next fair on the calendar. Officers kept order, and the fair court settled trade disputes quickly, cheaply, without fussy formality. In England these courts were known as Pie-Powder Courts, from the French *pieds poudrés*, or dusty feet. This name probably sprang from the way in which disputants came in, with the dust of the fair ground on them, to have their quarrels settled.

Some fairs were little better than glorified local markets, but a few became internationally famous. The two leading English fairs, at Stourbridge and Winchester, were widely known wool markets. The most important medieval fairs were those of Champagne. Champagne was a fertile region east of Paris ; it was easily reached by land and river, and lay across the trade routes from Southern to Northern Europe, with France on one side and Western Germany on the other. Its rulers governed the territory well, kept order, improved roads, and encouraged trade. By the 12th century six regular fairs were held ; each lasted some weeks, and the six took up nearly ten months out of the year. Cloth, skins, and fur were the most important goods sold, but almost every kind of article could be

obtained, from Oriental spices or Venetian glass to pots, pans, and old clothes. Further, the Champagne fairs became money markets as well. Kings, bishops, and nobles sent their servants there to borrow money ; or they bought goods and promised to pay for them at some later fair, and this practice of buying now and paying later spread to other classes of purchasers. The buyer recorded his promise to pay on a piece of parchment, and this " fair letter " (*lettre de foire*) was held by the creditor until his debtor redeemed it. In fact, some fairs eventually became more concerned with borrowing and repaying than with buying and selling goods. By 1500 the fairs of Lyons, Geneva, and of some towns in Italy and Spain were chiefly famous for the financial transactions conducted with such borrowers as the Pope, the kings of France and Spain, and others who wished to spend their income before they had got it.

Medieval Money and Banking

The Greeks and Romans had developed fairly good metal currencies, and Constantinople carried on its trade with a gold coin called the *bezant*. In Central and Western Europe the coinage went to pieces with the Roman Empire ; yet the idea of money did not die, for the value of goods and the punishment for breaches of the law were often expressed in money values. A buyer or offender could pay a shilling by handing over some article worth that amount, or by handing over the correct *weight* of silver if he had any. Soon new coins appeared, especially the silver penny, first made in 755 by the Frankish mint. The penny was about the size of a dime and

became very popular in most countries ; but it was not enough, for it was too valuable for paying for small purchases and too small to pay for large ones. At first a debt of a halfpenny was paid by cutting the penny in half ; to pay a farthing it was cut in quarters. Eventually, therefore, smaller coins had to be made. But the payment of a debt of a thousand pennies called for so many coins that a larger unit was needed. Silver coins, some as large as a quarter, some as big as a dollar piece, were therefore minted. Then, in the 13th century, enough gold was available for the minting of gold coins, the *florin* of Florence, the *ducat* in Venice, the *louis d'or* in France, and the *noble* in England.

Medieval coins were useful but far from satisfactory. They were crudely made and easily counterfeited. Great feudal landlords claimed the right to run their own mints, and there was much diversity of kinds and qualities of coins. This right took a long time to abolish, and had not disappeared in some countries in 1500 ; but England fortunately escaped almost entirely from the confusion. Kings occasionally reduced the amount of silver or gold in their coins in order to make a given weight of metal go further ; but this meant that the price of goods bought with the debased currency went up. Finally, Europe was short of precious metal. Its supply from its own mines was not great, and much of that supply had to be shipped to the Orient to pay for some of the articles bought there. Europe wanted more from the East than the East wanted from her. The difference between her large imports and her smaller exports had to be paid for in precious metal, and this helped to keep her on the edge of a currency famine.

Europe was, however, learning how to make and use other devices for buying and paying, and thus was able to do much business without the actual use of coins or with the use of only a small quantity. These devices might be *promises*, made on pieces of parchment, to pay a sum of money on demand or at some fixed future date; or they might be *orders*, also on parchment, commanding some one to pay. Much trade, especially wholesale, was done on credit, and the buyer was given three to six months in which to pay for his purchase. He might give the seller a note promising to pay, say 10 nobles, in three months. Or the seller might make out an order to him to pay that sum at the end of that time. If the buyer was a man of good repute in business circles, the piece of parchment was "worth money," and the seller would therefore have no difficulty in handing it to some one to whom he was in debt. This man in turn might pass it on, and it might go through many hands paying debts before the time came for it to be paid by the original debtor; and even he might pay it, not in coin, but by handing over another note which had come to him in payment for some goods he had sold. Thus a dozen transactions might have been settled without any need to use coins.

The "fair letter," which came into use at the Champagne fairs as a promise to pay at the next fair for goods, circulated in this way. Again, almost every merchant at the fair would have a lot of money owed to him and a lot owed by him. When he and his fellows came to the point of balancing all their debts and credits, they would find that very little currency was needed to clear up the mass of transactions.

Meanwhile the banking habit was growing, especially

in Italy, during the 12th and later centuries. Men became accustomed to putting their spare money in a bank, instead of keeping it in their own homes. When a man made a deposit, he was credited with that amount in the banker's books. When he wished to make a payment he might go to the bank, draw out money, and hand it to his creditor. But the latter might immediately hand it back to the banker, and have the sum added to his credit, while the banker subtracted the sum from the credit of the man who had drawn it out. The banker therefore began to allow his customers to transfer money to other people's accounts without bothering to draw it out. At first the customer had to come to the bank in person and order the transfer; but by the 15th century the banker would take the order in writing. Hence we get the beginning of the cheque, for a cheque is usually a written order to the banker to transfer some of a customer's deposits to some one else.

In one other important way the use of metal money was being economized, by the growing use of the *bill of exchange*. This bill has been so important in the history of trade that we must try to understand it at once. Let us suppose Francisco of Florence has bought some wool worth £100 from Smith in London. He can pay for it by shipping golden florins worth £100 to London, but the metal might fall into the hands of robbers, or the ship might be sunk. There is an easier and safer way. Francisco goes to Rodolfo, a Florentine merchant who has dealings with London, sells goods there, has an agent or branch house run by Brown, and has customers who owe him money. Francisco gives the florins to Rodolfo, and gets in exchange an

order telling Brown to pay Smith £100 on presentation of this order. Francisco sends the document to Smith, who takes it round to Brown, who pays him £100, probably out of money he has collected from Rodolfo's English debtors. Thus two debts are paid, but no precious metal has been exposed to risk; the only risk was run by the bill of exchange, and as it was probably sent in duplicate by different carriers the probability was that at least one copy reached its destination.

Bankers and merchants thus worked out ways by which money could be deposited, transferred from person to person, and paid from city to city or country to country. One other thing was needed to produce the essential features of modern banking; the banker must lend money—not his own, but that which was deposited with him. There were plenty of people who wished to borrow money in the Middle Ages; the peasant, craftsman, and small trader might need funds, and above them were the large merchants, the landlords, the kings, the bishops, and the Pope. A king might need money for war, or he might want funds to carry on the work of government till the time came to collect some tax. The Pope might need to borrow for similar reasons; but in addition he was faced with the problem of getting transferred to Rome the payments which were made to him by clergy and laymen from all parts of Christendom.

The small borrowers might go to petty money-lenders, who were little more than pawnbrokers; but the great borrowers needed the service of large bankers, who were usually merchants as well. The merchant bankers of Siena were famous in the 13th century; but one firm, the Bonsignori, which lent large sums to

the Pope, nobles, and kings, lent too much and went bankrupt in 1298 when its depositors became nervous and rushed to draw out their money. Florentine bankers stood out in the 14th century, and such firms as the Bardi and the Peruzzi lent heavily to the rulers of France, England, Naples, and Flanders. When some of these debtors defaulted in the 1340's, and especially when Edward III. of England said he could not meet a debt which looks like \$40,000,000 in modern values, the bankers were wrecked, and Florence had a serious financial crisis. In the 15th century the Medici family emerged as the leading banking house in Florence, and eventually became the political head of the city. By that time merchants in Augsburg, Paris, Barcelona, Cologne, Hamburg, Lübeck, Bruges, Antwerp, and London were doing banking work as well, lending money, accepting deposits, and transferring payments; and the Italian firms usually had branches in all these commercial centres.

**Business
Units**

Medieval business, like that in all ages, required capital as well as labour; and while one man *might* supply all the energy, skill, and capital that was

wanted, there was often need for more than a single individual could contribute. Hence all kinds of partnerships or groupings were tried. A very popular partnership was that in which one partner provided the money or goods which the other partner then took away by land or sea and sold; one provided the capital, the other the labour. If the venture was successful, the stay-at-home partner got his money back and received a share of the profits; but if it met with

disaster he lost his capital while his partner bore the discomforts of wreck, robbery, injury, and of wasted effort. This plan was known as *commenda* ; we can easily remember its name if we think of the first partner commending his money or goods to the other. Sometimes the trading partner supplied part of the capital ; sometimes the provider of the capital received only a fixed rate of interest instead of a fixed share of the profits ; sometimes a group of men combined to provide the capital, and often the trader would have goods commended to him by a large number of stay-at-homes. Sometimes the partners provided the capital and shared out the work as well ; this was true especially of the famous Italian commercial and banking family firms. Some of these firms supplemented their own capital by accepting deposits from outsiders. When a ship was to be built, its cost was divided into a large number of shares (called *loca*), say 32, 56, or 64 ; and these were sold to people who wished to risk a little money in ship-owning. If a mine was to be developed, many people might take shares in it, and so we have something similar to the modern joint-stock corporation. In short, there was a great variety of ways in which the necessary capital and enterprise could be brought together, and the task of keeping account of the interests of the many persons involved helped to develop the art of book-keeping.

The craftsman and the trader carried
The Regulation on their enterprises subject to many
of Enterprise rules and regulations. These were not
imposed to any great extent by strong
national governments, as is often the case to-day, for

in medieval Europe national governments either did not exist or were comparatively weak. The rules were largely laid down by the Church, the town government, or by the craftsmen and traders themselves organized in *gilds*—you can spell it *guilds* if you wish.

The Church had very strong opinions about economic behaviour. The man who wished to save his soul must do certain things and must not do others. He must treat his neighbour as he himself would like to be treated ; he must be truthful, honest, and avoid greed or covetousness. He must be content to sell his goods or his labour at a *just price*, and not put his price up if famine created a scarcity of foodstuffs or drink. He must not charge interest if he lent money to others, except in one or two special circumstances ; if he exacted interest he was a *usurer*, committing a foul un-Christian deed.

The town and the state put some of these teachings into effect by passing laws against usury and unjust prices. The town, as we have already seen, was especially concerned with the quantity and price of the necessities of life, and regulated prices, quality, and marketing methods. Beyond that it tried to do three other things—to protect its craftsmen and traders against competition from other towns, to regulate the competition of these men with each other, and to protect the consumer of all kinds of goods from bad workmanship, fraud, or deceit. If a town was large, the task of carrying out all this regulation was too great and complicated to be done by the city fathers, and it was therefore delegated to the *gilds*.

The origin of the gilds is obscure ; but
Gilds since there had been gilds in the
Ancient World, and in Eastern Asia as
well as in Western Europe, perhaps the gild was the
natural outcome of man's incurable habit of organizing
societies consisting of people who have the same belief,
the same interest in sport or art, the same dislikes, the
same political creed, or the same occupation. Constantinople had its array of gilds, and after A.D. 1000
gilds begin to be mentioned in the records of Western
European towns.

In Northern Europe the first organizations were
merchant gilds. The merchant gild seems at first to
have consisted of all who sold goods in the town,
whether they were craftsmen or traders. It tried to
keep for its members a monopoly of the local trade,
especially the retail trade ; to regulate that trade ;
to get reduction or abolition of tolls and other charges
when its members went outside the town to trade ;
and to secure a good reception and trading privileges
in towns or countries to which its members went.
Finally, the gild cared for its sick or poor members,
gave the dead a decent burial, and helped the widow
and orphan.

The second kind of gild was the *craft gild*. It was a
group of people doing the same kind of work or selling
the same kind of article. Soon after 1100 we have
mention of gilds of weavers, fishmongers, bakers, shoe-
makers, boatmen on the Rhine, mattress-makers, and
fullers. By 1270 there were 101 gilds in Paris, while
London, Frankfurt, and Lübeck had even more later
on. Florence had twenty-one *Arts*, as they were called,
and most medieval towns were supplied with almost

as many gilds as there were crafts and trades. Some of them were officially chartered by the king, but most of them received their authority from the town government, which supervised their ordinances, and helped the gild warden and his inspectors to enforce the rules.

Those rules were as follows :

(1) Only members of the gild could practise their craft in the town. Sometimes an attempt was made to prevent villagers from making goods, lest they injure the gild.

(2) Adults coming to the town might be admitted to the gild if their skill and character were acceptable and they paid the entrance fee. But young men must qualify by going through a period of apprenticeship, which eventually settled down at seven years in England. During those years the youth lived with his master, who taught him all the skill, the secrets, and perhaps the tricks of the trade, punished him when he misbehaved, fed and dressed him, and generally served as his foster-father. Then the youth underwent examination by the gild officials, and if he passed this test and paid his entrance fee he could be admitted to the gild. As soon as he had sufficient capital he was free to set up his own business, a master-craftsman.

(3) As a protection for the consumer and as a check on unfair competition between the members, many rules dealt with methods of making and selling, and inspectors went round the houses and workrooms of the guildsmen to detect offenders. Work at night was forbidden, since candlelight was not good enough for accurate work. Work on Sundays and Saints' days was banned, lest the ungodly make more goods than



A test of skill for admission to a Gild.

the godly. Bad or dishonest workmanship was attacked : weavers must not put faulty yarn into their pieces ; tailors must not pawn cloth brought them to

be made into garments ; bakers must not steal their customers' dough ; butchers must not mix tallow with lard, or sell dead dogs ; and so on. The punishment might be a fine, confiscation of the faulty material, or even the destruction of the offender's tools and his eviction from the craft. To prevent unfair competition, members must not try to steal each others' journey-men, must not hawk goods through the streets, and must not try to win customers by offering them bribes or presents. New methods of manufacture and new equipment were unwelcome if they gave any one craftsman an advantage over his rivals.

(4) The gild regulated labour conditions. It fixed wages, usually *maximum* rates, and fined those who paid or accepted more than was permitted. It fixed hours of labour, usually *minimum* hours, which ranged from dawn to dusk in winter, and from 5 a.m. to 7 or 8 p.m. in summer. It occasionally forbade or restricted the employment of women, either on the ground that they had not been properly trained or because they might deprive men of work.

The gild was thus a police system ; but it was also a brotherhood. It forbade members to slander or injure each other, and threatened the scandalmonger with expulsion. It looked after the sick and needy, and sometimes gave pensions to widows. It endowed a chapel or shrine, and paid for the saying of masses for the dead. It held periodical banquets, to which the members came dressed in the official livery of the craft. It even tried its hand at amateur theatricals, for on Corpus Christi Day the gilds in some towns gave, on movable stages which were pulled about the streets, dramatic representations of scenes from the Bible.

**Commerce
and Politics** We must not think that the craftsman or trader readily obeyed all the rules laid down for him by his gild, town, church, and state. He might seek ways

of getting round or under those which stood in the way of his plans for increasing his income ; sometimes he openly broke the law, paid the fine, and then broke it again. But he was usually eager to have all the help which the gild, town, or state could give him, and if his class ruled the town or had influence with the king, politics might do much to help industry and commerce. This was especially true in the great commercial cities of Italy and of Northern Germany. These centres were almost or quite city states, for they owed little or no allegiance to king or emperor, and their policies were dictated by the leading merchants and financiers.

Venice, for example, became famous because of its central position in the Mediterranean ; and it owed much to the energy with which its citizens conducted and developed their trade and shipping. But its rulers played their part. They were willing to help the Eastern Empire fight its enemies in 1082, if in return their merchants were freed from duties or taxes when they entered imperial markets. They were willing to help the Crusaders in return for trade privileges in the Holy Land. In 1204 the Venetian Doge—the head of the state—offered to transport and feed the Crusaders for a year in return for some silver and half the conquered lands or booty ; but when the fleet had set out, he virtually forced it to change its course, capture Christian Constantinople, give Venice a large part of the Eastern Empire, and grant Venetian merchants a monopoly of the trade of that region.

Venice was always ready to wage war with Genoa and other commercial cities, and the power of the state was always at the beck and call of the merchants when a new source of profit appeared or a rival needed to be crushed.

In somewhat the same way the German cities helped the trade of their citizens. Such places as Hamburg, Lübeck, and Cologne were well situated for commercial activity, and their merchants had plenty of energy, courage, and ingenuity. They received valuable help from their city fathers, especially in suppressing the pirates who infested the Baltic and North Seas and in humbling the King of Denmark when he tried to prevent them from going through the Sound, or sought to charge heavy dues. In 1227 Lübeck and other towns made an alliance to fight these two menaces—the Dane and the pirate; and by 1358 eighty towns on the coast or in the interior of Germany were banded together in the Hanseatic League. The League fought and crushed the Danish ruler, deprived him of much of his power, and took some of his property and income. Meanwhile it used diplomacy and force to strengthen the grip which its merchants had on much of the foreign trade of England, Norway, Sweden, and the Baltic. At home it provided lighthouses and buoys, dealt with questions of currency, shipping, and commercial law, settled disputes, and restricted the opportunities and activities of foreign merchants who came to its towns. In short it helped to give its people a monopoly of a rich trading area, and to make their work as profitable as possible.

Unfortunately for the Italian and German cities, commerce and politics were arts which the inhabitants

and rulers of other countries could learn, and as the Middle Ages drew to a close some of the students in Western Europe were becoming fairly proficient. In the comparatively backward lands of Spain, Portugal, France, Holland, and England a native merchant class was growing up, and was worming its way into the trade of the eastern Mediterranean or of the Baltic and North Seas. Some industries were growing up, ship-building was improving, while some traders were becoming rich enough to operate banks and make large loans to rulers. Eventually all these developments might reach a point where they could ask for, and receive, the encouragement and protection of the government. In the centuries which followed the end of the Middle Ages the state was very busy trying to help the economic enterprises of its own people, or of some of them, and to hinder or hurt the enterprises of people in other lands. Why, and how, we shall see in the next chapter.

Supplementary Reading.—Heaton, *Economic History of Europe*, chaps. 5–11 ; Day, *History of Commerce*, pp. 31–127 ; Knight, *Economic History of Europe*, chaps. 3–6 ; Neilson, *Medieval Agrarian Economy* ; Baldwin, *Business in the Middle Ages* ; Ashley, *Economic Organization of England*, chaps. 1–3 ; and articles on the manorial system, feudalism, guilds, fairs, and the Hanseatic League, in the *Encyclopaedia of the Social Sciences*.

CHAPTER IV

THE OPENING OF THE NEW WORLD, AND ITS CONSEQUENCES

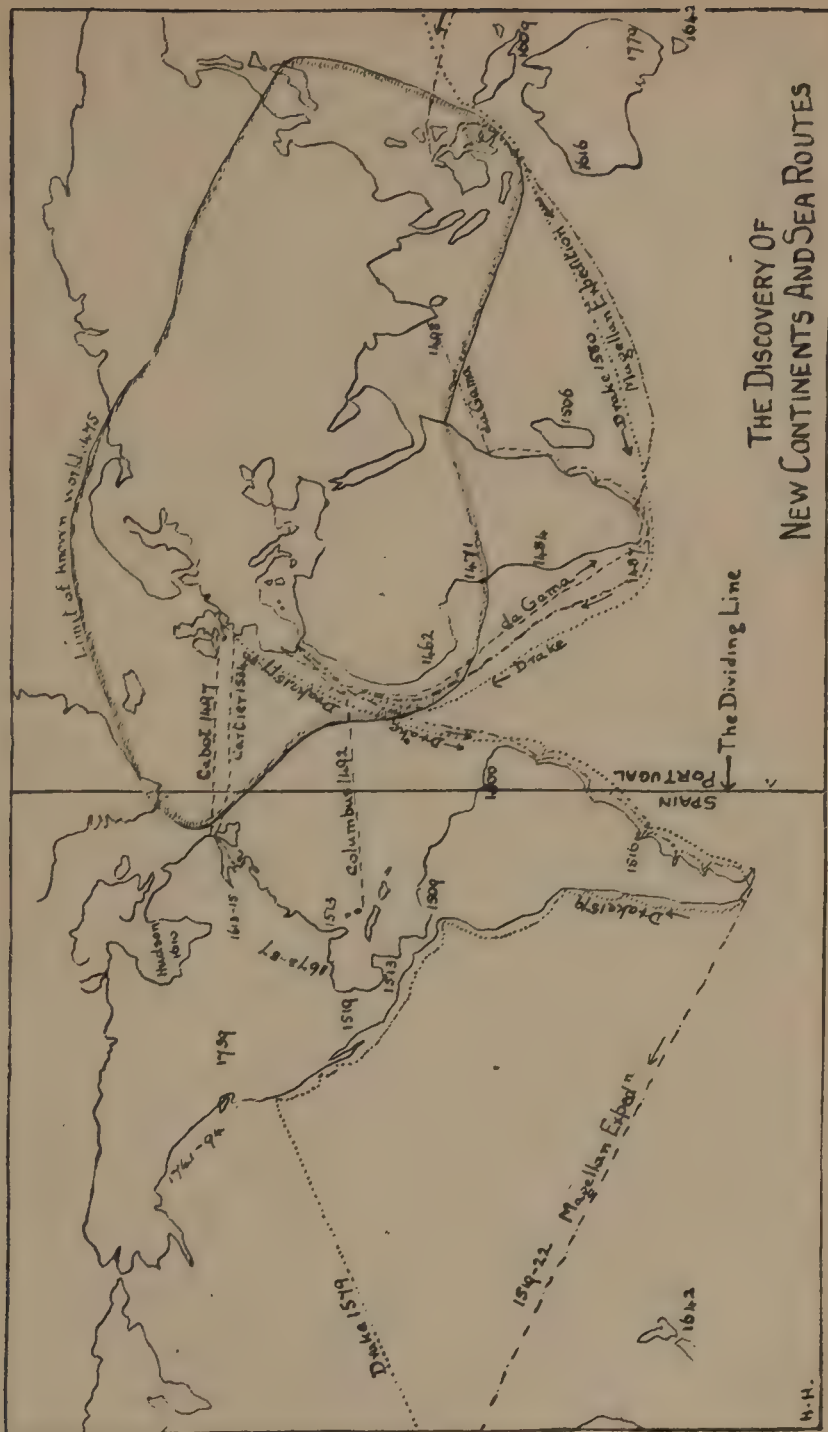
BETWEEN 1500 and 1750 commerce underwent such far-reaching changes in quantity, character, and range that we sometimes refer to the period as that of the *Commercial Revolution*. These centuries saw the decay of much that had been the warp and weft of the Middle Ages. Feudalism lost some of its grip on Western Europe, and virtually disappeared from England, but it became more powerful east of the Rhine, and was not destroyed there till the 19th century. Usuculture retreated before the advance of commercial agriculture in some regions. The gilds decayed, for industry and trade were growing too large to be kept in the strait-jacket of municipal or gild restrictions. Fairs were too short and infrequent to handle the expanding volume of trade, and methods of bringing buyer and seller into more frequent contact had to be devised. Old trade routes were discarded in favour of new ones, and old commercial centres found their occupation gone or their monopoly challenged. The importance of the Mediterranean declined, and Venice saw much of her commercial glory depart. Hanseatic traders met rivals in the markets of the

Baltic, the Low Countries, and England, were deprived of their privileges abroad, found their own German market invaded by foreigners, and—unkindest cut of all—discovered that the herrings changed their annual itinerary and ceased to come into the Sound to be caught.

While old things decayed, new ones were born and grew vigorously. The Renaissance stimulated demands for more luxurious houses, furniture, and clothes, encouraged scientific inquiry, and created a market for the books which could be produced in great numbers after the printing-press had come into use about 1450. Industries grew up to provide munitions for armies which were now using cannon, muskets, and gunpowder, to supply the luxury-loving courts of rulers, to extract metals, mine coal, refine the sugar that came from the West Indies, knit stockings, make watches, produce cloth out of cotton and linen yarns, and even to brew beer and put it into bottles. On top of this expansion came that caused by the discovery of new continents and new sea routes. Hence there were great opportunities for the enterprise of individuals and companies, and great demands for better banking, shipping, and commercial organization.

The journeys which discovered the Americas and found the sea route to Asia were sponsored by Portugal and Spain. These countries had grown in economic and political strength during the later Middle Ages. Portugal had freed herself of the Moors by 1250, and Spain completed a longer but similar task in 1492.

THE DISCOVERY OF
NEW CONTINENTS AND SEA ROUTES



Portugal traded with France, England, and the Low Countries, while Spain was a good second-class commercial power in the Mediterranean. The two countries wanted to gain more strength by extending their possessions; they wished to spread Christianity, and still felt the Crusader's urge to defeat or convert infidels; they shared the general curiosity of the age, the desire to explore; and they wanted a slice of the Oriental trade monopolized by the Italians. Cheaper goods, large profits, political prestige, and the satisfaction of having extended the bounds of Christendom—all were theirs if an all-sea route to the Orient could be found.

It was sought in two ways—by going south round Africa, and west from Europe. Prince Henry of Portugal sent ship after ship crawling along the West African coast, and after his death (1460) the Portuguese carried on his work. In 1487 Diaz reached a point at which the long southward stretch of the African coast ended; it was the Cape of Good Hope. Eleven years later, Vasco da Gama rounded that point, turned east, then north-east, and finally reached India. The new way had been found.

Six years earlier (1492) Columbus, seeking something—he did not know what—had reached the Bahamas; Cabot in 1497 touched Cape Breton and Newfoundland, and within the next ten years the mainland of America was discovered. Balboa sighted the Pacific in 1513, and in 1519–22 Magellan's ship went round the globe. Those thirty years, 1492–1522, must have been full of thrills to all who went down to the sea in ships; they revealed new continents and new oceans, and made new calls to missionary, trader, and seaman. Only

one continent remained undiscovered. Men believed that there must be a great land mass south of the Equator to balance the land masses north of it, yet Australia was little known till late in the 18th century.



Magellan's ship, the first to sail around the world.

Those who visited it before that time touched chiefly the north and west coasts, where they found waterless wastes, stunted trees, a strange beast with a big jump (the kangaroo), and natives "the miserablest in the world." Not till 1770 did any explorer touch the fertile east coast and reveal another possible field for settlement, production, and trade.

**Effects
of the
Discoveries**

When Vasco da Gama reached India he announced, "We come in search of Christians and spices." Missionary work soon became vigorous both in the Orient and the Americas. It is, however, the economic effects of the discoveries that concern us. The first of them was the ability to transport much larger quantities of Oriental products to the European market. They could now be packed into the hold of a ship which would take them straight to western ports. In 1582, for instance, one ship brought to Lisbon 750 tons of pepper and cloves, "and much cinnamon and (other) spices." Other eastern wares accompanied the spices: Chinese porcelain, fragile, beautifully coloured, and ornate; cotton cloths, whether plain calicoes, striped gingham, or patterned chintzes and cretonnes; indigo, a valuable dye; copper from Japan, the world's largest producer in the 17th century; and tea, which became so cheap that in the 18th century poor people drank it, though they probably emptied the leaves out of the pot only when it was so full of them that there was little room for water.

The second effect was to bring the coasts of Africa into close touch with European trade. From West Africa gold and ivory were obtained, but the chief commodity was slaves, who were shipped to the Americas. Slave-trading became a big business, and sometimes, but not always, a profitable one.

The third effect was the placing of great quantities of American produce on the European market. Tobacco, potatoes, and cocoa were the most important novelties. Tobacco was at first hailed as a cure for all

sorts of illnesses, from wounds, ulcers, and abscesses to "diseases of the heart," "wasting of the lungs," "colds in the head," "evil of the joints," and "bites of venomous beastes." But by the early 17th century people smoked because they liked to do so, whether they were well or ill. America also supplied Europe with countless cargoes of fish, fur, and dyewoods, while the West Indies, when planted with cane, became Europe's sugar bowl.

The fourth effect was a great addition to Europe's supply of precious metals. The Spaniards found plenty of silver and gold in the hands of the natives of Mexico and Peru. They took much of it, and then attacked the supply which still lay underground. Between 1520 and 1660 about 20,000 tons of silver and about 200 tons of gold were sent from Latin America to Spain, and from Spain the metal was quickly scattered over the rest of Western Europe. It broke the Continent's famine of precious metals; it allowed the currency to be expanded, and banks to increase their holdings; and much of it was exported to Asia to pay for goods. Further, as silver became more plentiful it became less valuable, as all commodities do. The value of the silver in a coin therefore fell in terms of other goods, or, in other words, the coin purchased less, and prices went up. People had to pay between two and three times as much for goods in 1600 as had been paid in 1500. This increase in prices benefited some people, especially those who bought, produced, and sold goods; but wages did not rise as rapidly or as much as did prices, and wage-earners were worse off; landlords were not always able to raise rents, so their standard of living was injured; and governments had difficulty

in raising taxes to meet the higher cost of government.

The fifth effect was to move the centre of commercial and political gravity. The lines of intercontinental trade no longer passed through the Mediterranean or down the Rhine ; they went *past*, instead of *through*, the Strait of Gibraltar, and except for purely European trade, the Mediterranean became a backwater, though a fairly populous one. Religious and dynastic wars tore Italy and Central Europe in twain during a large part of the 16th century. Italy became a political wreck, and her economic enterprises slowly decayed. The long feuds north of the Alps culminated in the Thirty Years War (1618-48), from which Germany emerged exhausted, with over half her population destroyed, her commerce, art, and literature almost vanished, and her people brutalized in mind and manners. Hence many factors combined to deliver economic leadership into new hands. Let us look at them.

Portugal sent Vasco da Gama east,
Portugal Spain commissioned Columbus to go west ; and when the Pope drew a line down the world map and gave all west of it—including all America, except Brazil—to Spain, and all east of it—including Africa and Asia—to Portugal, the plums of the new discoveries fell for a time solely into the hands of these two countries. Portugal quickly monopolized the whole Asiatic trade, from the Red Sea to Japan ; she sprinkled the coasts of the Indies with her “factories,” *i.e.* trading posts, and the produce of the Orient flowed almost solely to Lisbon. From Brazil she drew chiefly gold and diamonds, and for a time she

monopolized African trade. The trade in spices was vast and profitable. As one merchant said, "When the Lord God grants, by His mercy, that none of the ships take damage either in coming or going, then the merchants wax rich."

This commercial supremacy was short-lived. Portugal's small home territory produced little that she could exchange for the wares of others. She had not enough people or capital to exploit her imperial resources or build a great merchant marine, and must lean on Italian, Dutch, German, or English merchants and financiers. France, Holland, and England did not regard her monopoly of Asia and Africa as sacred, and soon broke into it. Finally, she had an ambitious neighbour, Spain, and was subjected to Spanish rule from about 1580 to about 1650; but during that time the Dutch and the English stole most of her eastern trade.

Spain The commercial greatness of Spain was equally bright but brief. Spain in the 16th century was the greatest power in Europe. It held parts of Italy, and was master of the western Mediterranean. It ruled the Netherlands, and so controlled the mouth of the Rhine. In 1580 it took Portugal, and with it Brazil. It threatened to overcome England. By discovery, conquest, and the Pope's dividing line it claimed America. Its merino sheep yielded a fine quality of wool, and the Moors and Jews had given it great skill in industry, agriculture, and commerce. Its prestige in economic, religious, and international affairs stood high, and the king who sent the Armada against England described himself as "the junior partner of Almighty God."

Yet this huge structure was soon badly damaged. Its political power was shaken by the defeat of the Armada (1588), the successful revolt of the Netherlands about the same time, wars with France and England in the 17th century, and a series of mediocre, dissolute, or mentally weak kings. The causes of economic decay are not easily stated, but here are some of them: (1) After 1600 the imports of American silver and gold fell off rapidly, and the manufacturers and traders who had sent goods to America were hit hard, since the treasure had been largely used to buy goods in Spain. (2) Spanish products became dearer than French, Dutch, and English goods, and were therefore pushed out of the home and colonial markets. The same was true of shipping, and much of Spain's carrying trade was done in foreign-built boats. (3) War, extravagance, and the greed of courtiers imposed a crushing burden of taxes on the people. The Spanish Empire, like the Roman Empire after A.D. 200, paid a terribly heavy price and got only bad government for its money. When taxes proved inadequate to balance the budget, the currency was debased on several occasions, and then later was restored. Debasement always sent prices up, restoration pushed them down, and in such uncertain conditions trade always suffers. (4) Traders from Northern Europe climbed over the fence that Spain tried to build round her colonies. They attacked Spanish fleets, they smuggled goods into the colonies, and they brought bullion away.

We can sum up all these causes by saying that Spain's policy at home and in Europe overtaxed her resources and left her poor rather than rich, weak

rather than powerful. She managed to keep most of her colonies till the early 19th century, but she failed to make the most of them or to build a great economic system on them.

From Spain the centre of economic interest moved to North-western Europe, and stayed there till the rise of the United States and Japan after 1860 broke Europe's monopoly. Holland, England, and France were the scenes of important developments in agriculture, industry, and commerce. Each country was chiefly concerned with the domestic and the European markets, with making or selling goods to its own people or to those who lived round the Baltic, North, or Mediterranean Seas. But each held strings which went out across oceans to Asia, Africa, and America; each had colonies; each built up merchant fleets to traverse the Atlantic and Indian Oceans; and each fought the other two in its desire to secure a greater share of "ships, colonies, and commerce."

By the middle of the 17th century.
Holland Holland had become the leading and most envied commercial and financial country in Europe. This was not due to natural resources, for the land was small, and much of it was sandy, swampy, or in danger of being flooded by the Rhine or the North Sea. The Dutch wrestled with such soil as they had or such as they could win back from the sea, and became known as efficient, intensive farmers and reclaimers; but their fortune was wrung from the sea rather than from the land, as fishermen, shipbuilders, and overseas traders.

First they developed the North Sea fishing industry,

using larger boats than the Hansards had known, and improving the methods of salting and packing the catch. Amsterdam was popularly said to be built on herring bones. Then they broke into the Hansards' preserves in Scandinavia and the Baltic, taking in fish, salt, cloth, and Asiatic or American goods and bringing out furs, grains, lumber, "naval stores," and metals. They bought the lumber and naval stores in great quantities, paid for them promptly, and therefore obtained them cheaply. They designed a large cargo vessel, the *fly-boat*, which was easily and cheaply built and operated. Consequently they could carry heavy cargoes at very low freights, and were at an advantage over all possible rivals in North-western Europe. Much of the carrying trade to and from the ports of England, France, Portugal, and Spain was done in Dutch ships.

The produce of the Spanish and Portuguese empires was brought on from Cadiz and Lisbon to Antwerp, London, Havre, and other northern ports in Dutch vessels. When the Dutch revolted against Spain after 1580, Cadiz and Lisbon were closed to them. They therefore felt free to go to America and the Indies, and to see what they could pick up in those distant places. In the Orient they evicted the Portuguese from most of their outposts, and kept the English from getting much foothold outside India. The Malay Archipelago and its spices became a Dutch preserve; Ceylon was Dutch, and after 1638 Dutchmen were the only Europeans permitted to trade with Japan. On the way to the East, Cape Town and Mauritius were Dutch ports of call, and on the west coast of Africa Dutch vessels captured a large slice of the slave-trade.

In the Western World Holland did not do so well. She took Jamaica, Brazil, and New Holland (the Hudson Valley), but soon lost them, and left the English and French to fight for the fur trade of North America. In the West Indies she obtained Curaçao and two or three other islands and found these most useful. From them she could conduct legal or smuggling trade with Latin America, the British tobacco colonies, and the sugar-producing islands.

This trade in so many near and distant fields stimulated many industries in the home country. Dutch shipyards were the envy of Frenchmen and Britons. Several "finishing" industries flourished: English cloth was imported, passed through its final processes, and then exported; West Indian sugar was refined, cocoa and tobacco were prepared for the consumer, spirits were distilled, diamonds were cut and polished. A great printing industry grew up. Skilled workers made clocks, mathematical instruments, lenses, and maps. The Dutch were tolerant in matters of religious and political belief; hence Jews, Protestants, and other persecuted people flocked to Holland when their own governments oppressed or evicted them, and since the exiles were usually craftsmen, traders, or financiers, Holland benefited by their arrival.

Dutch industrial and commercial towns grew in size and number. Amsterdam became a great financial centre, both for banking and for the raising of loans. Buying and selling of stocks and government bonds became a common practice, and speculation was sometimes as intense in old Amsterdam as it was later in New Amsterdam. Meanwhile, the small countryside

was intensively cultivated to feed live stock, produce cheese and butter, and grow tulips.

Holland's economic supremacy reached its height during the 17th century, and then began to be challenged. France and England became too strong politically for her, and England especially caught up to her economically, learning how to build ships, make and finish goods, and develop a financial centre in London. Holland had few natural resources on which to found industries, and had to import them. England had some resources, and when she developed the skill, and the capital, she was able to outstrip Holland. Finally, Holland suffered severely during the wars from 1793 to 1815, and when the conflict ended she found her rival across the North Sea was far ahead.

France Holland and England were small countries which prospered by taking to the sea and the ocean. France was four

times as large as England and Wales and twenty times as large as Holland, with much good land and a genial climate. Its population (about 15,000,000 people in the 17th century) could live comfortably according to the standards of their class and period by tilling their small farms and vineyards, practising well-developed industries in the towns, and fishing off the coast. There was little real need for foreign commerce, distant ventures, large merchant fleets, or ambitious colonizing efforts. Yet the opportunities for seeking adventure and finding profit by such enterprises appealed to Frenchmen, as they did to others, and their rulers were not disposed to let Spain, Portugal, Holland, and England have all

the good things that came from commerce and colonization.

France had gradually become united under a central ruler, and in the 17th century was the strongest state in Europe. But the wars which were waged to gain unity or to win and hold the first place among states required large quantities of munitions, caused much ruin or dislocation, and were costly. The magnificent court, especially that of Louis XIV., was expensive and required many luxury goods. Further, French statesmen contended that it was little use being politically first if France was second, third, or worse, in some industries, in shipbuilding, and in foreign or imperial trade. Hence the government sought, in the intervals of peace, to repair and fill its damaged purse, and to foster developments which would strengthen the French economic structure where it was weak. Richelieu (1624-42) and Colbert (1661-83) threw energy and much public money into encouraging agriculture, making roads and canals, fostering industries, stimulating shipbuilding, checking imports of manufactured goods, and extending colonial and commercial enterprise.

Sometimes this state regulation and encouragement achieved its purpose ; it helped to build up the production of high-grade cloth, tapestries, and pottery ; it gave France better waterways and the best main roads in Europe ; and it removed some tolls which hindered domestic trade. But it failed to build up a merchant fleet which could rival that of Holland, and the companies which Colbert founded to develop overseas trade failed dismally. Sometimes the state hindered progress, especially since taxes were high,

and the government borrowed much money which might have been used as capital for industry and commerce.

French traders built up a good market in Turkey and the Levant, and Marseilles became an important port. They found another good market in Spain and Portugal, supplying many of the goods which went out to the colonies. Trade with England was impeded by the many wars waged between the two countries after 1688, and by high tariffs in peace time. In Northern and Central Europe French luxury goods were bought by the rich and the rulers. In Asia France did not have much success till after 1713. Then the French East India Company began to make headway under the direction of Dupleix, but from the struggle with the English company it emerged defeated on the battlefield.

In North America the French interest in fishing was intense after 1500, and the fur trade received much attention after 1600. But fishing and fur trading did not lead to much settlement, and the soil and climate of the St. Lawrence Valley were not very attractive to farming immigrants. Hence, when Canada was lost by France the population of the colony was only about 60,000. In the West Indies France did much better, for Martinique, Guadeloupe, and Haiti became great producers of sugar, tobacco, coffee, cotton, and indigo. Traders and shipowners in Nantes, Havre, Marseilles, and other ports carried French goods to the slave coast of Africa and exchanged them for slaves, who were taken to the West Indies and traded for sugar, which was carried to the home port to be refined.

During the 18th century French commerce and shipping expanded rapidly in times of peace, and industries made great strides. Unfortunately for her, wars were still frequent, and these not only dissipated her wealth, but deprived her of the Canadian and Indian markets. Nevertheless, in 1789, she had a large external trade, and was prosperous. But her government was bankrupt.

England In our picture of medieval Europe England was tucked away in the top left corner, a little land largely self-sufficing and rural, known to the outside world chiefly as an exporter of wool, lead, tin, dried fish, some grain and leather, and a small but growing quantity of unfinished cloth. Englishmen owned ships and traded abroad, but they were overshadowed by the Italians and Hansards. The Italians bought much of the wool and financed the crown, while the Hansards had their own self-governing establishment, the *Steelyard*—a boarding-house and warehouse—in London. England did not so much trade as be traded with; her commerce was largely passive rather than active, conducted by those foreigners who possessed the capital, the ships, the experience, and the trade connections.

For England the Middle Ages seem to have ended in economic stagnation, or even decline. Until about 1350 or 1400 agriculture had been expanding to produce grain and wool for home and foreign markets; the output and export of cloth had grown, and English merchants had gone forth to find and win markets in all lands—from Scandinavia and the Baltic countries to Spain and Portugal. But these advances were

checked in and after the late 14th century. The Black Death of 1349 and subsequent years caused a heavy loss of population. The Hundred Years' War with France caused a heavy drain of men and money, especially during its disastrous closing stages. The Wars of the Roses were a civil war which caused destruction and disturbance at home, and weak monarchs were unable to protect their merchant subjects against the fierce attacks of the Hansards in continental markets. Hence the export of grain and wool declined, that of cloth stood still between 1400 and 1475, and English traders were driven out of the Scandinavian and Baltic markets by the Hansards.

With the end of the civil war and the accession of the Tudors, England obtained internal peace and a strong government. Consequently, the economic tide seems to have turned. The export of wool did not recover, and in the 17th century it was forbidden. The production and export of cloth began to expand again, and by 1550 about 120,000 woollen pieces were being exported each year. The industry had spread out beyond the towns, especially in Yorkshire, the West of England, and East Anglia. It was regarded by statesmen as England's most prized staple industry, and was carefully nursed by them during the next two centuries. Its goods found a market in Northern and Central Europe, but after 1600 cloth went to the Levant, to India, to the young but rapidly-growing American colonies, and to Latin America. Many of the cloths were of low quality and price, suitable to the needs of soldiers, colonists, and the middle class, or even the poor; but some producers, especially in the West of England, made high-grade fabrics.

Meanwhile the native merchant class and merchant fleet gained strength. Driven out of some markets by their continental rivals, they concentrated on the Low Countries. They banded together to secure support and protection from their own king, to obtain concessions from foreign towns and rulers, and to charter ships. By 1500 a "Fellowship (or Company) of the Merchant Adventurers of England in the Low Countries" had taken definite and permanent shape. During the next hundred years it fought the Hansards for control of the export of cloth across the North Sea, and in 1598 had them expelled from the Steelyard and from England. It gained concessions and privileges from continental towns, especially from Hamburg, and made that city its headquarters. It also functioned as a gild, controlling its section of foreign trade: it claimed for its members a monopoly of the export of cloth to the east coast of the North Sea; it tried to protect them on their journeys, settled disputes between them, limited the number of traders by demanding apprenticeship, limited the quantity of goods each member could export, punished fraud, and generally supervised the conduct of the trade and of the trader. It could not, however, keep its monopoly water-tight. Non-members—interlopers or free-traders, as they were called—carried cloth to Holland in defiance of the Company, and in 1689 these outsiders persuaded Parliament to throw the trade open.

The expansion of cloth production and the transfer of the cloth export to British hands were supplemented after 1500 by many other developments which were almost new. In the 16th century some landlords and farmers turned their estates or village lands from arable

to pasture in order to produce more or better wool. In the 17th century they expanded production to supply food to the growing population of London and other towns and to provide grain for export. England became one of Europe's smaller granaries, producing a surplus of wheat. To do this, waste lands were cleared and made fertile, some open fields were enclosed, and some swamps were drained.

Meanwhile new industries arose. Raw cotton was imported and mixed with linen to make a cheap cloth called fustian, and thus the foundation of the Lancashire cotton industry was laid. In 1589 Lee invented the stocking frame which knitted hose quickly and cheaply and started a new industry, for stockings had formerly been cut out of cloth. The metal industries made great strides, and the deposits of iron, copper, tin, and zinc were mined more vigorously. The iron was useful for many warlike and peaceful pursuits; copper and tin were mixed to make bronze, tin and lead to make pewter plates and drinking vessels, copper and zinc to make brass articles of all sorts, from cannons to candlesticks. Sheffield, Birmingham, and London made metal goods of all kinds, and not merely supplied the English market, but exported them to many parts of Europe and to the American colonies. Finally, coal began to be used in greater quantities and for more purposes. It took the place of wood as fuel, and coal fires helped many industries which needed plenty of cheap fuel for heating or boiling, such as brewing, distilling, sugar-refining, soap-making, lime-burning, brick-making, or the heating of metals. Only one industry could not use coal as fuel, and that was the smelting of iron ore to extract the iron. The

coal contained too many impurities which mixed with the iron, so charcoal must be used. But the supply of trees from which charcoal could be obtained was soon exhausted, the charcoal became scarce and costly, and the iron industry had to mark time or even retreat until the discovery that coke was a splendid fuel allowed it to march forward after 1700.

English commerce grew at home, on the Continent, and farther afield as agriculture and industry expanded. The lands around the North Sea and the Mediterranean countries became good customers, and Holland bought many cloths to finish and resell. Spain and Portugal took goods for their own use or for their colonies, and Lisbon swarmed with agents or partners of British firms. To the Orient, Africa, and the Americas Englishmen turned their serious attention after 1550, and still more after 1600. At first they did not like to challenge Portugal and Spain, and therefore sought a north-west passage round the top of Canada, and a north-east passage round the top of Russia, to China and Japan. But when these routes proved undiscoverable, and when the Dutch revolt and the defeat of the Armada proved that Spain was not invincible, Englishmen felt free to go where they wished.

In 1600 the East India Company was founded, and by 1615 it had trading posts in India, the East Indies, and Japan. It later added Canton and the Persian Gulf, but was forced out of Japan by the Dutch and Japanese, and out of the Indies by the Dutch. Its main field of action was India. It took out cloth, metals, and bullion, and was scolded by its critics for draining gold and silver out of England. It brought back spices, indigo, tea, cotton cloths, and silks. The

cottons became so popular that the woollen manufacturers became afraid of the competition of these cheap attractive cloths, "made by a parcel of heathens and pagans that worship the Devil and work for a halfpenny a day." This fear drove Parliament in 1700 and 1721 to forbid the importation and then the use of cotton cloth with patterns on it. Yet the Company survived all criticism, flourished, defeated its French rival, and eventually became the ruler as well as the chief foreign trader in a large part of India.

After two false starts, trade and settlement in North America began with the founding of the Virginia Company in 1606. By the time this company was dissolved in 1625 the colony was well established and was becoming a large exporter of tobacco. The Plymouth Company (1620) and the Massachusetts Bay Company (1629) planted settlements in New England; other colonies followed, such as Maryland (1633), the Carolinas (1663), Pennsylvania (1681), and Georgia (1732), while New Holland and Delaware were taken from the Dutch in 1664, and Acadia from the French in 1713. North of this string of Atlantic colonies lay Newfoundland, first settled by Gilbert in 1583, and base of the rich fishing industry carried on near its coast. Still farther north and west the Hudson's Bay Company, founded in 1670, developed "a great traffic of beavers" in the lands around the bay discovered sixty years before by Henry Hudson. Finally, the Bermudas, Barbados, Jamaica, and other islands settled or captured during the first sixty years of the 17th century, became great sugar plantations, purchasing slaves from Africa, manufactured goods from England, and fish, flour, and lumber from the mainland colonies. Some

of these islands were also useful outposts for legal or illegal trade with Latin America.

The American colonies thus offered a fine home for the settlement of restless, surplus, or unwanted population ; a splendid market for British wares ; a source of supply of commodities Britain could not produce ; a field for the investment of capital ; and a wide world of opportunity for enterprising and adventurous men. There was need for many ships and many merchants, and ports like London, Liverpool, Bristol, and Glasgow profited from the transatlantic traffic. Sometimes the trade was back and forth, as when a Virginia planter sent his tobacco to a London merchant and got the goods he required from England in return. Often, however, it was triangular, square, or even polygonal. Thus a Liverpool or Bristol trader might take cloth, fire-arms, beads, bells, knives, liquor, etc., to the Slave Coast and use them to buy slaves. He took the slaves to the West Indies and used them to buy sugar, which he brought to England and sold. Or he might take fishing supplies to Newfoundland, there take on a cargo of fish for Portugal, exchange the fish for port wine in Lisbon, and return to England. Or the traders of New England might take rum to Africa, bring slaves to the West Indies, and return home with molasses from which to make more rum. In this roundabout trading, profit depended partly on skill in selling dear and buying cheap, and since triangular trade contained three sales and three purchases the profits might be large—but were not always. The risks were great : shipwreck, piracy, attacks by enemy warships or privateers in time of war, damaged cargoes, a heavy death-rate among the slaves, glutted

markets and low prices, all these and other risks had to be faced. But sometimes they were all evaded, and enterprise across the Atlantic never failed to find men willing to try their luck and skill.

**The Organiza-
tion of
Enterprise**

The growth and changes described above were accompanied by developments in the organization of industry, commerce, and finance. As in the Middle Ages, there was still much usuculture and usufacture, many retail craftsmen and retail farmers who sold goods direct to the consumer. But some industries could not be conducted on these lines, and much trade required the services of a middleman, or even of a chain of them. In a few industries the craftsmen sold their goods to merchants in the open market. For instance, in Yorkshire the "clothier" bought enough wool to make one or two pieces of cloth each week, spun and wove it with the aid of his family and perhaps a little outside help, and sold it in the weekly cloth market, held in the main street of some town, to merchants who came there to obtain the supplies they needed. But in other parts of England merchants or large clothiers bought wool in bulk, put it out to be manufactured into many pieces, and sold the product. Liverpool merchants imported cotton and linen, and put them out to be made into fustian. London merchants bought wool or silk, and put it out to be knitted into hose by workers who lived a hundred miles away in the Midlands. Similar conditions prevailed in the making of French woollens and silks, Belgian lace, and German cutlery, linen, and wooden clocks or toys. Often the worker owned the

tools, but the knitters rented their frames, possibly from the man who supplied them with material. In such cases, the putter-out supplied the capital for equipment and for material, and the worker—I wish we dare call him the *puttee-out*, but must be satisfied with *outworker*—supplied only the labour, for which he received a wage. Some men had as many as 500, 1,000, or even more people working for them, all in their own homes, and on material that might have to be sent fifty to a hundred miles to find sufficient hands to process it.

This system had some defects. There was waste of time as the goods travelled along the roads at about two or three miles an hour ; material was lost or stolen, the quality of workmanship could not be supervised, and some workers were slow or lazy. Some employers, therefore, began to gather their workers together, to bring them to the material instead of sending it to them. This was costly, for the employer needed a large building to house his workers, he must provide all the equipment for them, and he might have to build homes if he wished to have his plant in a rural setting. When the English monasteries were closed about 1540 some clothmakers obtained the buildings and turned them into great workshops. In one of them every part of the abbey was filled with looms, and even the church became a weaving shed. In general, however, the provision of buildings and equipment was an unwelcome drain on the employer's supply of capital, and in addition his workers might resent the attempt to make them leave their homes, to discipline them, and to make them come to work punctually. Still, by the latter part of the 18th century

the gathering of workers into large workshops had become widespread, and we know of one French hosiery firm which in 1789 had 800 people gathered under its roof and 2,000 working at home.

Some industries could not practise putting-out, but must gather labour in, and the number of such occupations grew greatly during the early modern period. Shipbuilding, mining, dyeing, cloth finishing, smelting, sugar-refining, and the production of salt, gunpowder, paper, glass, good pottery, cannon, etc., were carried on by groups of wage-earners on the employer's premises. Some of these industries used machines driven by water-power, others had much capital laid out in buildings and equipment, and some of them had a great degree of division of labour among the work-people. In short, they had all the essentials of the modern factory system. But they were not yet large enough to make factory conditions of production the chief form of industrial organization. In 1750 the great majority of English industrial workers toiled in their own homes, in cellars, garrets, or sheds, as retail craftsmen, as producers for wholesale buyers, or as employees of a putter-out. On the Continent this was true till at least 1850 or 1870.

Most of the domestic workers probably owned their own equipment, which they had inherited, made at home, or bought for a few dollars. They enlisted the labour of the whole family, from the child of four years up to the grandparents. Masters still trained apprentices, and might employ a journeyman or two; but in Prussia in 1816 there were only 56 journeymen and apprentices for every 100 masters. If the industry was carried on outside towns, the cultivation

of a bit of land or the care of a few animals might give the family an additional source of income. Hours were long ; most of the power required had to be supplied by the worker's muscles ; the yield of product from much effort was small, and incomes were consequently low. Finally, fluctuations in the demand for goods made producers very busy at some times, but left them unemployed at others. Complaints about business depression, about the lack of orders, and about the inability to find buyers or jobs were as well known in the days of Henry VIII., Charles I., or Queen Anne as in those of Victoria or George VI.

**The Business
Unit**

Most industry and commerce could be conducted by individuals, family firms, and partnerships ; but some of the needs of this early modern period could be met only by gathering large sums of capital together from many investors in a joint stock company.

Partnerships were as useful as they had been in the Middle Ages. Stay-at-home Spaniards supplied the money to soldiers who went off to conquer and plunder Mexico and Peru, or provided goods which traders took out to sell there. Partnerships ran banks, ships, mines, stores, workshops, etc. ; they were formed for a number of years, and while one partner might provide only capital, in many cases all the partners shared in supplying the funds and in running the business. Often one partner stayed at home to produce or buy goods, while the other settled in America, Hamburg, or Lisbon, and sold the wares when they reached him.

For some ventures, especially those which had to be large from the beginning, the partnership was not

enough. It might not be able to raise sufficient money from two, three, or four pockets ; its life was short, for it expired after a fixed number of years or when any partner died ; and if it went bankrupt each partner was liable to have all his property taken from him to meet its debts. His liability was not *limited* to the sum he had invested in the business ; he lost that, but in addition he might lose his house, lands, and other goods if they were needed to satisfy the creditors. This *unlimited liability* was consequently a hindrance to investment.

The joint stock company offered a better way of financing large enterprises. It collected capital from a large number of investors, whose liability was limited, and who were therefore more willing to risk a small or fixed loss. The capital was entrusted to directors and officials, who presumably knew how to run the business, but sometimes did not. The company was given a legal personality by receiving a charter from the crown, and was usually also given a monopoly of the industry or of the trade in some commodity and area for a number of years. If it succeeded in its enterprise and got its charter renewed, it might carry on for centuries. The Hudson's Bay Company, founded in 1670, and the Bank of England, founded in 1694, are still alive, while the Dutch East India Company ran for nearly 200 years, and the English East India Company for over 250 years. Finally, the investor could hope to get profit on his capital, and to get his money back either by the winding-up of the company or by selling his shares to some one else.

The practice of collecting capital from many people had been known in medieval Italy, *e.g.* for building

ships or establishing large banks. Then it was used to finance mining and smelting in Central Europe, and appeared in Holland and England after 1550 as a device for financing exploring, trading, and raiding expeditions. In 1553 a company was set up in London, with shares of £25 each, to seek the North-East Passage and open up trade with Russia. Between 1562 and 1567 Hawkins went on three slave-trading journeys, which were financed by all sorts of rich people—gentry, manufacturers, landowners, merchants, and even the Queen herself. When Frobisher went in 1576 to find a North-West Passage Elizabeth invested liberally, and others who were “willing to venter sumwhat in the voiadge” took up shares of £100 each. Hawkins repaid the capital and distributed large profits at the end of his first two journeys, but the third was a failure; and Frobisher had no success, either in finding the North-West Passage or winning a fortune for his stockholders. Drake did much better; the capital invested in his voyage round the world amounted to £5,000, but as he captured treasure worth at least £1,500,000, his supporters made 4,600 per cent profit, and the Queen received £250,000. No wonder she knighted him!

The joint stock method was next applied to the development of trade, the planting of colonies, and the financing of mining and smelting industries. Of the trading companies, the most important were the Dutch and English East India companies. At first each English voyage to the Orient was regarded as a separate financial transaction, and when the ships returned those whose money had provided the outward cargo received their capital back and whatever profit was

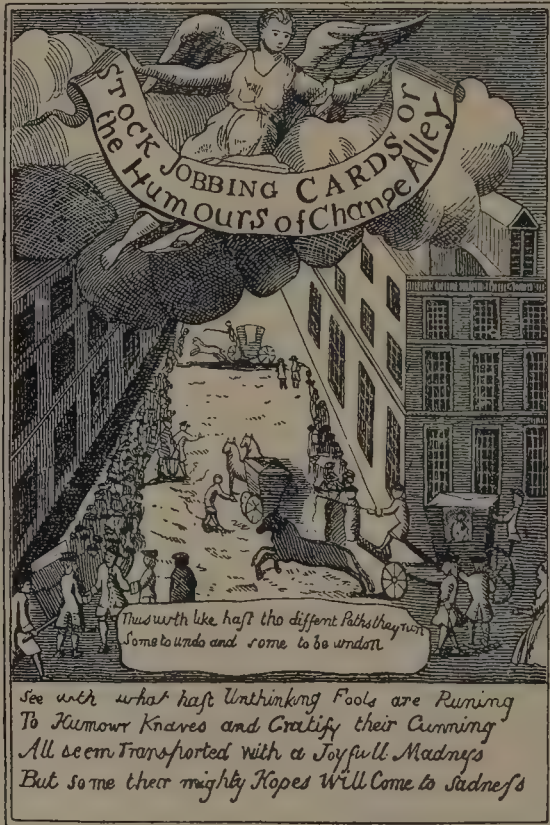
available. But the voyages overlapped, and book-keeping became complicated; the Company wanted money to sink in such permanent fixtures as forts and warehouses; and the Dutch company seemed to fare better with permanent capital. The English company, therefore, eventually made its stock permanent in 1657, and distributed only dividends. Other companies followed this example, for funds sunk in colonization, smelters, waterworks, or mines could not be drawn out and given back to the stockholders each year. If the investor in such companies wished to get his capital back, he had to sell his shares, and this selling became so common by the late 17th century that stock markets emerged. The men who carried on this commerce in shares and in national debt bonds met at first in coffee houses or side streets in London, but in 1773 they secured a proper building for their market. In the same way the commerce in bonds and shares began in North America when a handful of men gathered under a buttonwood tree in Wall Street.

Investors in the two great East India companies had little cause to grumble at the dividends they received. Yet joint stock was no royal road to profit, for those who invested in the Virginia, Plymouth, and Massachusetts Bay companies received no dividends and lost most of their capital. The French companies set up by Colbert all failed, as did Scots and Prussian attempts to wring dividends from distant trade. The Hudson's Bay Company had a fitful career during the first fifty years of its existence. It was given by royal charter the right of sole trade in the Bay region, and possession of all lands not actually occupied by other British subjects or those of any other Christian prince.



First sale of Canadian Furs in London, 1671.
(Note the candle on the auctioneer's desk.)

The Company was made "true and absolute" lord and proprietor, with power to make peace and war with any native people. It was managed by a governor



A caricature of the day of the South Sea Company, 1720.

and committee of seven, and at first had only 19 shareholders and a capital of £10,500. Large profits were made on the early voyages, but soon trouble came in abundance. The French resented the presence of a

rival fur-trader, and long before England and France were formally at war the traders of the two countries were hitting at each other. During the war of 1702-13 the fur trade was so depressed that the Company began an insurance business in London to repair its damaged finances; but when the Treaty of Utrecht (1713) recognized the Bay area as a British possession, real progress once more became possible.

During the last years of the 17th century and the first two decades of the 18th, company-promoting became popular, and capital was raised for mining, smelting, supplying towns with water, street-lighting, improving rivers, making paper, glass, cloth, etc., banking, insurance, and foreign or colonial trade. The possible abuses of joint stock were soon discovered, for unhealthy speculation and the promotion of bogus companies became very common, especially between 1717 and 1720. Companies were floated for every conceivable—and inconceivable—purpose, such as trading in human hair for wig-making, the manufacture of square cannon balls, the extraction of butter from beech trees, a wheel for perpetual motion, an air pump for the brain, the “transmutation of fluid mercury into a solid,” and for “an undertaking of great advantage, but nobody to know what it is,” in which each subscriber of £2 was to get £100 per annum. This bubble of speculation and promotion reached its height in the buying and selling of South Sea Company shares in England, and of John Law’s Louisiana Company stocks in France. In both lands it burst in 1720, and caused widespread ruin. Public opinion blamed joint stock as the cause of that ruin; Parliament therefore forbade any companies to operate unless they

obtained the blessing of a royal charter or a private Act of Parliament, and since charters and acts were hard and costly to obtain, joint stock organization passed into the background for a century.

Money and Banking

In spite of the great influx of American silver and gold, Europe's coinage improved only slowly in quality during the early modern period. The methods of minting were crude until coin presses were introduced about 1700; the coins cost much to make, yet they were easily copied, clipped, or filed. In 1695 it was found that a batch of English coins which were withdrawn from circulation had lost half their weight. In 1696 the English coinage was re-minted, and the edge of each silver or gold coin was "milled" with a pattern to protect it; but daring men continued to file, clip, and counterfeit, and traders carried small scales in their pockets with which to weigh guineas that were offered them. Only within the last hundred years has underweight or false money disappeared from circulation.

Minting had become a royal monopoly, but in Central Europe there were a lot of monarchs and a multitude of currencies. Kings may have wished to keep their currencies good, but were not always able to do so. Henry VIII. and Edward VI. debased the English currency so heavily that the silver which had formerly been in one shilling was spread over eight shillings by 1555. Elizabeth restored the currency in 1561, and from that time onward no English ruler resorted to debasement. But the Spanish kings of the 17th century did so on several occasions, and in France

Louis XIV. frequently tried to pay his war bills by reducing the amount of silver in a coin or by increasing the money value of the coin.

In all countries there was a chronic scarcity of coins for small change. It might cost more to make a copper coin than the coin was worth, and mints therefore rarely made any. Retail trade and the payment of wages were rendered difficult, but private enterprise attempted to overcome the obstacle. Shopkeepers, innkeepers, merchants, and employers issued their own coins of lead, copper, or pewter, and these "token coins" constituted the larger part of the small currency circulating in some towns during the 17th and 18th centuries. Not till 1797 did Britain seriously attempt to provide an adequate copper currency.

Merchants could, however, pay each other without being greatly dependent on the currency of the realm. The bill of exchange had been greatly developed and improved since the Middle Ages, and its use was universal both in domestic and foreign trade. Suppose, for example, that Jonah of Manchester sold fustians worth £100 to Amos in London. He would write out a bill ordering Amos to pay £100 in 90 days to him or to some third person (Jack), or "to order." He would send this bill to Amos, who would write "Accepted" and his name on it and return it to Jonah. Jonah might then hand it to Jack to pay a debt; or he might keep it till it matured; or he might sell it to a neighbour, Bill, who had to make a payment of £100 in London. Or, needing some cash now more than he did £100 in three months, Jonah might take it to a banker and "discount" it for about £98. The banker might keep it till it fell due, and regard the £2 which he made on

the transaction as interest on the £98 he had paid for it nearly three months ago ; or he might sell it to some one who wanted a bill in order to make a payment. Hence the paper might pass through many hands before some one took it to Amos on the appointed date and obtained £100.

The bill had thus become *negotiable*. It passed from hand to hand, though not quite as easily as does a dollar bill to-day. Each person who passed it on "endorsed" it by signing his name on the back of it, and each of them in turn must meet the bill and pay £100 if Amos, Jonah, Bill, and the others whose names came above his could not pay. Hence it was comparatively *safe*, and most commercial debts were paid with bills, not merely inside each country, but between countries. If a Philadelphia merchant bought cloth in England, the seller would draw a bill on the American's London agent, and this agent would accept it, pay it when it fell due, and take the money out of funds he had collected for goods sent to Europe by the Philadelphian. Or the American might buy a bill drawn by some American seller on some English buyer, and make his payment that way. Hence there was a regular trade in bills, as people bought, sold, accepted, and discounted them, and some merchants or bankers did a large business in them. Bills made the wheels of commerce go round, and London became the centre on which most of them were drawn.

By the 18th century London was also catching up on Amsterdam as a banking centre. Northern Europe had learned much about banking from the Italian cities, and began to provide places where traders could deposit, transfer, and borrow. The Bank of Amsterdam

(1609) and the Bank of Hamburg (1619) were established on Italian models, to give safe-keeping to deposits, and to transfer funds from one customer's account to another's. They were not supposed to make loans, but did so secretly, and excessive lending wrecked the Bank of Amsterdam in 1796. In London people who wanted a safe place for their money and valuables deposited them in the strong-room of a goldsmith; but people who wished some income from their money as well as a moderate amount of safety lent it to merchants for short periods, or handed it to a scrivener (who wrote bonds and contracts) and asked him to find a borrower. After 1660 the goldsmiths forged ahead of the others. They took charge of your money, paid you interest on it, and allowed you to draw it out or transfer it by writing cheques. Sometimes when you made your deposit you received a written or printed promise to pay it back on demand—in other words, a bank-note. Since the goldsmith discovered that the deposits were rarely drawn out, or that new ones came in as old ones went out, he began to lend some of them to traders or to the government. While he might lend actual coins, he preferred to lend by giving the borrower bank-notes, *i.e.* promises to pay coin on demand; but these notes passed from hand to hand, were not brought back for exchange into coin, and the amount of coin in the vault did not fall. The goldsmith might therefore lend more and still more money in notes, until finally he had issued promises to pay in coin two or three guineas for every one he had in hand. Experience taught him that this practice was safe up to a certain point, unless a panic sent all the note-holders and depositors down on him demand-

ing that he redeem his promises. So the goldsmith turned into the banker. He took deposits and paid interest. He issued notes in excess of the money in his vaults. He granted loans, and discounted bills of exchange.

These developments culminated in the foundation



Mercers' Hall, the first premises of the Bank of England, 1694 up to 1734, when it removed to its present site in Threadneedle Street.

of the Bank of England. In 1694 a group of financiers agreed to lend £1,200,000 to William III., at a time when the government's credit was very low. In return they got interest at 8 per cent, and a charter permitting them to open a bank, receive deposits, and lend money, either in metal or notes. At first it was thought that all the lending would be to the needy crown, but soon

a large private business grew up, and the Bank's notes came to be regarded as being "as good as gold." The Bank, the goldsmith bankers, and the merchants who did banking and bill discounting, selling, or accepting as a side-line, all combined to make London the financial centre of Europe.

Transportation

Improvements in the facilities for transportation were uneven during the early modern period. If the needs of war forced governments to think about improving the methods of moving troops and munitions, then the merchant benefited from the work done on roads and rivers. France, the largest land mass under one ruler and an active military power, probably did most to help the movement of people and goods. During the 16th century some roads were improved, and after 1713 an ambitious programme gave the country the best highways in Europe. Meanwhile the main rivers were made more navigable, and their upper waters, which are fairly close to each other, were linked together by canals. A canal was cut to make it possible to carry goods by water from the Bay of Biscay to the Mediterranean.

In England most traffic moved on the rivers or along the coast, and roads therefore received little attention till after 1660. In 1555 villagers began to be ordered to spend four days each year repairing the roads in their parish, but this *statute labour* was done in an amateurish manner, and the results were not very good. In the 18th century more serious efforts were made, much money was borrowed and spent in improving old roads or making new ones, and travellers

had to pay tolls in order to provide interest on the debt. Yet in 1770 a traveller could report that one road was "infamous. I was near being swallowed up by a slough"; another was "sufficient to dislocate one's bones"; a third was so bad that he cautioned all travellers "to avoid it as they would the devil, for a thousand to one but they break their necks or their limbs by overthrows or breakings down in these 18 miles, of execrable memory." Not all roads were as bad as these, and some were quite good; but even at the best, bridges were few, rivers often had to be forded, and Dick Turpins infested the lonely spots.

On these roads goods were carried at the age-old walking pace of two to three miles an hour by pack horses, on men's backs, and in carts where the surface was good enough. In most parts of Europe private or public stage coaches plied between the chief cities; but those who ran them usually qualified their promise to take people, say 200 miles in four days, 'with the words, "if God permits." In fact, a stage coach was sometimes nicknamed a "God permit."

In Europe, east of the Rhine, travel conditions were generally very poor, except on some of the great rivers. The German and Russian rivers froze in winter, and the chief Russian streams flowed into landlocked or frozen seas. Human obstacles were piled on top of the natural impediments. International trade was subject to an elaborate maze of customs duties, tolls, prohibitions, etc., and often merchants had to pay heavy duties to take their goods from one part of the country to another or to get them into a town. On the Rhine there was one toll station to every ten miles of stream, and on the Loire one to every five miles. In

1650 there were 48 tolls on the Elbe, and if a timber merchant sent 60 planks of lumber from the head of the stream he would pay the cost of 54 of them to toll-collectors before they reached the river mouth. Salt quintupled in cost by travelling 260 miles on the Loire.

At sea there were important improvements. The Dutch fly-boat was cheaply built and operated, and in New England ships were built cheaply because the lumber was so abundant. Ships for the Atlantic trade slowly grew in size and efficiency, while sturdy solid vessels had to be designed for the long journey to the Indies. The growth of national navies after 1500 gave merchantmen some protection, for in time of peace a frigate or two might be sent to convoy them; but in war-time the risks of capture or destruction were great, and even in peace-time there were pirates and storms.

Transportation had thus many defects. Its cost was still high, its speed low, and its carrying capacity small. Commerce needed more and better roads, navigable rivers and canals, quicker methods of moving heavy, fragile, or perishable cargoes over long distances, fewer restrictions on freedom of movement, and the abolition of many duties. Not till after 1750 were most of these needs supplied.

Over the whole field of enterprise the state exercised control. The guilds had lost much of their power, and the influence of the Church had waned; but the state had grown stronger, and national rulers in Madrid, Lisbon, Paris, London, or other capitals asserted authority over the people within their national boundaries. The state approached the task of regu-

**Economics
and Politics**

lation with mixed motives. Sometimes it was in dire need of money, and sold monopolies or privileges to individuals or groups. Sometimes it sought to protect vested interests and old industries against the attacks of interlopers or new rivals. Often it acted on the belief that a country could not hold its own in the quarrelsome family of nations unless it was economically strong and self-reliant. Each nation therefore tried to develop its own resources, foster agriculture, industry, and commerce, win new markets, deprive rivals of their customers, create a merchant marine which could be turned into fighting ships in war-time, and keep for itself whatever raw materials or special skill it possessed. National strength was the aim, and if a nation could gain that strength and at the same time weaken a rival, all the better.

While the state tried to use economic means to gain these two political ends—revenue and fighting strength—manufacturers, farmers, traders, and shipowners were equally eager to use political means to gain their economic ends—security and profit. The state could help them in countless ways, and they did not hesitate to ask for aid. Sometimes they might buy it by offering to pay new taxes, by promising the ruler a share of the profits, or by resorting to bribes. Sometimes they wrapped their requests in the country's flag, and asserted that what would be good for them would also be good for the country. They found it easy to work up anger against the foreigner, and to have his ships or goods impeded for the benefit of the native. They lobbied in Parliament or at court, poured out pamphlets, and used their votes if they were members of the Lords or Commons.

The result of this combination of state aims and of economic interests was a mass of laws and decrees, which has been labelled *Mercantilism* or the *Mercantile System*. The label is not a very good one, for the state controlled the manufacturer and the farmer as well as the merchant ; but we have not yet been able to find a better name, though *Statism* (or *étatisme*, as the French would call it) might be satisfactory. From the 15th or 16th century to the 18th, almost all the rulers of Europe pursued a policy of nursing and controlling the activities of their people. Colbert was the most enthusiastic of the regulators, but statesmen copied each other's policies, and the resulting pattern was similar in most lands. Let us look at its chief features.

(1) *The Encouragement of Industries*. This was attempted by prohibiting, or imposing heavy duties on, imports of foreign manufactures. Some goods were banned entirely, *e.g.* silk and cotton imports into England, since they injured English silk and woollen manufacturers. Other goods came in on payment of heavy duties, and the idea of a protective tariff became popular in the 17th century. On the other hand, the export of raw materials, tools, or equipment, and the emigration of skilled artisans was forbidden, lest a rival should thereby be able to build up a competing industry. England forbade the export of wool in 1660, and did not remove the ban till 1825 ; but smugglers managed to convey many bales to the Continent, and there was frequent lament that foreign nations " have long sucked the sweetness of the sinews of our trade." The emigration of English skilled

workers was formally forbidden by law in 1718, in order to stop the activities of "divers ill-disposed persons" who "have of late drawn away and transported artificers and manufacturers out of His Majesty's dominions into foreign countries by entering into contracts with them to give them greater wages than they have or can reasonably expect to have within this kingdom, and by making them large promises and using other arts to inveigle and draw them away." The export of knitting frames was forbidden by a law of 1696, and that of a silk machine in 1749, although the silk machine was a medieval Italian invention which was adopted in France in the 16th century and had come to England from France in 1718. When English inventors became very busy after 1750 and produced some revolutionary machines, Parliament passed half a dozen laws to prevent these new devices, or plans or models of them, from being exported. Yet England, like every other country, was eager to import foreign machines and welcome skilled immigrants.

In order to protect or encourage a new industry or trade, the Crown sometimes granted a monopoly to an individual or group; but many monopolies were prompted by the desire to reward court favourites or to get revenue by selling privileges to the monopolists. Monopolies were at various times granted for such things as the making of glass, soap, starch, wire, and pins, for dyeing cloth, mining alum, importing wine, or obtaining sea salt. Most of these failed to develop the industry or trade concerned, but merely fleeced the consumer by charging high prices. Hostility toward all forms of monopoly grew strong in England during the 17th century, and most monopolies were

swept away ; but one important exception remained—the monopoly granted to the inventor of a new machine or process. By a law of 1624 he was given the sole right to use any tool, machine, or method he had invented or had introduced into the country, and no other person could use or make it without his permission. Thus the patent law came into being, and when the period of active invention began in the 18th century some inventors benefited greatly.

Finally, the state tried to encourage industries by seeking to maintain and raise the quality of production, especially of goods which were to be exported. Complaints frequently reached England that its cloth was full of fraud and deceit. “The false and deceitfull makynge, dyinge, and dressynge of cloth disgraceth it in foraigne parts,” said an English committee of inquiry in 1622, and in 1652 Hamburg sent a delegate to London to complain of the “abuses which are in the makeing of the English cloaths.” A common trick was the excessive stretching of cloth when it was being dried on tenter-frames after the fulling process had washed out all the grease and dirt. The cloth was thereby made wider and longer ; but it shrank immediately it was rained on, and so, in the words of a pamphlet written in 1613, “If a gentleman make a liverie for his man, after the first showre of rain it may fit his Page for Bignesse.” Every trade had its tricks.

The guilds had tried to stamp some of them out, and now it was the turn of the state to make the attempt. In England, Parliament passed scores of cloth laws fixing standards of weight, length, breadth, quality, etc., forbade certain processes or methods, and sent inspectors or searchers into the industrial areas to see

that cloth and other goods were honestly made. In France, Colbert tried to force all manufacturers into guilds, and the regulations which he and his successors issued between 1666 and 1730 to control the making of cloth fill four great volumes and 2,200 pages.

(2) *The Encouragement of Agriculture.* This was attempted most seriously in England. By various "Corn Laws" passed between 1660 and 1689, grain could be exported freely, whereas up to that time its export had been restricted in order to save the country from risk of famine. If the home price fell below a certain level—48s. a quarter—because of bountiful harvests, a state bounty of 5s. a quarter was given the exporter. On the other hand, grain imports paid a heavy duty if the home price was below 54s., but were admitted at a moderate duty if the price was 54s. to 80s., and came in almost duty-free if famine forced the price above 80s. Thus the consumer was protected against excessive famine prices, while the producer could, by exporting his crop and collecting the bounty, receive a satisfactory income. It is very difficult to estimate the effect of this policy. In time of famine prices did go very high, and there were violent bread riots; in times of plenty they went very low. In good years there was a large export of grain, but after 1760 England needed all the food she could grow for her rapidly-increasing population, and in 1773 the export of corn was forbidden if the price went above 44s., while virtually free imports were allowed if it went above 48s.

(3) *The Encouragement of Shipping.* Holland's shipping supremacy annoyed all the other maritime

nations, especially the French and English. To encourage English shipbuilders and owners and to hit the Dutch was the aim of the Navigation Laws of 1651, 1660, and 1663. These acts decreed: (1) that goods from Asia, Africa, and America could enter England or her colonies in English or colonial ships only; (2) that European goods must enter England in English or colonial vessels or in those belonging to the country from which the goods came; (3) that the external trade of the colonies must be conducted in imperial ships; (4) that all foreign goods destined for the colonies must pass through England; (5) that certain colonial staple exports, including sugar and tobacco, but not fish, must be sent only to another colony or to England; (6) that no foreign ships carry goods along the coast from one English (or colonial) port to another. Thus England was to be the bottleneck through which foreign goods flowed to the colonies, and through which most colonial goods flowed to foreign consumers. English ships would profit by carrying them on, English merchants would profit by handling them, and the English treasury would benefit by collecting taxes on them.

These complicated clauses are hard to remember, and you need not try to do so. The only thing that should be kept in mind is that in almost every possible way the shipping of goods was kept out of the hands of the Dutch and inside the family circle, so that mother and the children would get the benefit and the foreigner be left out in the cold. This attitude characterized the next aspect of state policy.

empire-builders tried to keep for themselves the full, or at least the greatest possible, benefits of trade with their colonies. Their argument might run: "We founded or captured the colonies, we protect them and finance them. Why should any one else be allowed to profit by dealing with them?" Or the plea might be one for imperial self-sufficiency and regional specialization. Let each colony produce the minerals, foods, and raw materials for which it is best fitted. Then mother can buy these things from her children, and cease buying them from foreigners; and she will pay for them by sending the manufactured goods which she makes so well, and by supplying the necessary shipping services. It would be foolish for her to produce crops which the colonists can grow much better. England suppressed the cultivation of tobacco in her own southern counties, and shut out Spanish tobacco, so that the Virginia planters should have no competition; she also offered bounties on some colonial products, and admitted others duty-free or at such low tariff rates that the colonists had a monopoly of the English market for these goods. But it would be equally foolish for the colonists to turn aside from producing raw materials and foodstuffs, and start making for themselves the cloth, hardware, and other manufactured articles which they can obtain so much better in quality and lower in price from the mother country. If they foolishly or short-sightedly desire to make these things, they must be dissuaded or compelled to desist. Hence colonial production of woollens, felt hats, sail cloth, and ironmongery was condemned by London; but that of raw iron was blessed, since England had to buy much of it abroad and would

rather get it from her colonies than from Sweden or Russia.

(5) *The Accumulation of a Large Store of Precious Metals.* Ideas on the meaning of wealth and the nature of money were just taking shape in the 17th century, and some men thought of wealth as being almost solely the precious metals. Gold and silver were welcome commodities in all lands, and there was a general feeling that the more a country had of them, the better and richer it would be. But few European nations had gold or silver mines in their territories ; how then were they to increase their stock ? Drake's method of raiding Spanish galleons had its limitations, and a complete ban on the export of the coveted metals was not feasible. The only satisfactory way seemed to be to steer trade in such directions that a country exported as great a value of goods as possible and imported as little as it could. If in this way there resulted a net surplus of exports—a *favourable balance of trade*—the foreigner would have to pay for that surplus by sending precious metal. To get a favourable balance of trade was therefore a cardinal aim of commercial statecraft. For instance, in 1650 a commission was appointed by Cromwell to consider, among other things, “ of some way that a most exact account be kept of all comoditys imported and exported through the land, to the end that a perfect Ballance of Trade may be taken, whereby the Commonwealth may not be impoverished by receiving of comoditys yearely from other parts of a greater value than what is sent out.” Six years later an Act of Parliament declared that “ it has been found by long experience that the prosperous state of all

islands is very much (under God) maintained and supported by a quick and flourishing trade, and in a just endeavour and care that the exportation of the native commodities overbalance the importation of foreign commodities."

This policy influenced the making of commercial treaties, and decided the countries with which trade was to be encouraged or impeded. English trade with Sweden was discouraged because the Swedes did not buy Virginia tobacco, while that with Russia was stimulated "because of the inordinate amount of tobacco smoked by the Muskovites." Trade with France was frowned on, since France was willing to sell plenty of brandy, wine, and silk, but wanted little from England except the wool which England would not let her have. Therefore the balance of trade with France would be unfavourable. Portugal, on the other hand, was a good customer. She had little, but port wine to exchange for English cloth, the balance would always be in England's favour, and Portugal would be obliged to send Brazilian gold to London. By the Methuen Treaty of 1703, England admitted Portuguese wine at two-thirds the duty payable on French wine, in return for the free admission of English cloth into Portugal. Englishmen were thus compelled to drink port, which they did not like and which gave them gout, or pay high prices for the French wines and spirits they did like.

As a matter of fact, they got the French wines if they wanted them, and got them fairly cheaply, thanks to the smuggler. The English Channel was alive at night with "owlers" or smugglers, carrying wool to France and returning with silks, wines, and

spirits. This law-breaking ran through the whole fabric of mercantilism. Skilled artisans did emigrate ; machines or models or plans did reach foreign shores ; the cloth laws and Colbert's rules were ignored by manufacturers ; the Navigation Laws were evaded when they proved irksome, but full advantage was taken of them when it proved beneficial to do so. Colonists made, sold, and imported what they wanted, traded with the French and Dutch West Indian smuggling outposts, circumvented the law controlling their shipping and trade when it restrained them, but obeyed it when it brought them greater profit.

To enforce the whole system of state control would have required an army of well-paid and honest officials, and a strong popular tradition of obedience to the law. No country could afford the first of these essentials, and it is doubtful whether any land had the second. Hence the success of the state regulation of economic enterprise was partial and patchy. Many developments, such as the growth of English and colonial shipping, the expansion of English grain exports, and the rise of some industries, would probably have come if there had been no state protection and encouragement. The most we can say is that they might have come more slowly.

Supplementary Reading.—Heaton, chaps. 12-16 ; Day, chaps. 15-27 ; Ashley, chaps. 4, 5 ; Lipson, *Economic History of England*, vols. 2, 3 ; Nussbaum, *History of the Economic Institutions of Modern Europe*, parts 2, 3 ; Packard, *The Commercial Revolution* ; and articles on Asiento, balance of trade, banking, Colbert, companies, Fuggers, John Law, mercantilism, plantation wares, putting-out system, and slavery, in the *Encyclopaedia of the Social Sciences*.

CHAPTER V

THE REVOLUTIONS

WE have now to see how the world described in the last chapter became the one we know to-day.

The changes have been so far-reaching that we are tempted to call them revolutionary. They have been brought about largely through developments which were already visible before 1700, and which were speeded up as a result of invention, discovery, and scientific research after that date. For a thousand medieval years man made little change in the way he did his work, and we cannot be sure that he even thought of or desired any change. But in the later Middle Ages and during the Renaissance he began to be more inquisitive, to study the world around him, to lay the foundations of the subjects we call physics and chemistry, and to search for better ways of working. His progress was slow but sure; after 1700 it became quicker, and since then he has succeeded in making two great general discoveries.

In the first place, he has discovered better ways of producing goods, and ways of making new kinds of goods. In agriculture, industry, and mining he has found quicker, cheaper, and more productive ways of working. He has learned how to devise machines,

how to drive them with steam or other kinds of power, how to extract metals cheaply in great quantities, and how to apply science to the problems that confront him. In the second place, he has discovered better ways of moving persons and goods. He has learned how to harness power and make it move bulky or perishable goods of low value quickly and cheaply in large quantities over long distances. He can now travel at great speed, and flash messages along wires or through the air. Thus we have had a revolution in production and a revolution in transportation.

**The
Agricultural
Revolution**

There had been some change in farming methods since the Middle Ages, but in many parts the open field system, with its scattered arable strips, still survived. Implements had improved little, and land lay fallow every second or third year. There was a lack of winter fodder, and many animals had to be killed each fall; hence it was impossible to build up great flocks and herds, the supply of animal manure was not increased, and crops were therefore small. The live stock were ill-bred and ill-fed, especially if they were pastured on the open commons. Sheep weighed only about 28 lb., and seldom yielded more than 3 lb. of wool; the "black sheep" of nursery fame must have exaggerated grossly when it claimed its fleece would fill three bags—unless the bags were very small. Cattle were small and bony, and the "roast beef of Old England" must often have been tough. Conditions were much better in Holland, North Italy, parts of France, and around big towns generally, for the stimulus of a near-by market or the scarcity of

land made men get the most out of their farms, and some fields were cultivated as intensively as if they were gardens ; but in such remote areas as Russia, South-western France, and Spain the land was being tilled in 1789 as it had been in the days of the Roman Empire,



"Farmer George," or Royal Affability.

From a caricature by Gillray, who here pictures him walking with the Queen on his Windsor farm and accosting a labourer.

though with less skill and success. Finally, many regions still lay waste—swamps, moors, or sandhills—of little use to man or beast.

During the 18th century these conditions began to change, especially in Britain. Population, manufactures, towns, and trade were growing more rapidly

than in previous centuries, and there was a call for more food and raw materials. Landowners became interested in improving their estates, and experimental agriculture was a fashionable alternative to hunting or drinking. George III. loved to be called the Farmer King; Walpole used to read the letters from his farm steward before he touched any state documents. Viscount Townshend deserted politics in 1730 and won fame with the nickname of "Turnip Townshend." Agricultural societies sprang up and books on farming sold well.

Out of this enthusiasm and experiment many important results emerged. Jethro Tull (who died in 1741) demonstrated the value of sowing seed with a drill instead of scattering it broadcast, and revealed the benefits to be obtained by ploughing the land thoroughly, and by hoeing between the rows of growing plants. Townshend showed that turnips could be grown on land which would otherwise have been left fallow; the turnips provided a valuable winter food for cattle, and the annual autumn slaughter was no longer necessary. Better drainage, deeper ploughing, regular hoeing, new varieties of seeds, all were tried with profitable results, while agricultural machinery was designed and gradually improved. On the Continent the intensive cultivation of potatoes and sugar beet became widespread during the 19th century.

After 1750 cattle breeders gave attention to the production of bigger and better animals; sheep were increased in weight from 28 lb. to 80 lb., and their fleeces from 3 lb. to 8, 10, or even 12 lb. The average weight of cows sold in Smithfield market rose from 370 lb. in 1710 to 800 lb. in 1795, and most of this

increase was in flesh, not bone. Commons and waste lands were enclosed and turned into plough-land or pasture, and the landed gentry obtained permission from Parliament to sweep away the common field system, abolish the strip distribution of arable, eliminate the commons, and redivide their estates into compact farms.

Agricultural Science. The experimenters of the 18th century worked largely in the dark, since they had little knowledge of soil chemistry, botany, or the principles of heredity. Jethro Tull, for instance, seemed to think that plants lived on small particles of soil, and he worked the ground vigorously so that the particles would be small enough for the roots to swallow them without choking. But in 1802 Humphry Davy gave a series of lectures on "The Connection of Chemistry with Vegetable Physiology," and in 1840 Justus von Liebig published a report on the relation between the food needs of plants and the chemical composition of the soil. If crops were to grow, the soil must contain enough of the right chemicals, and any deficiency of these ingredients could be remedied by using the proper fertilizer. European farmers therefore began to put great quantities of chemical manures into their land, and obtained large crops as a reward. Then scientists turned their attention to the problem of breeding better plants and animals, and of producing seeds suitable to different climates. They discovered a wheat which could be grown on the semi-dry lands of Australia, and gave the Canadian prairies the Marquis wheat which would mature in a short growing season. Thus the foundation of modern farming is

scientific knowledge ; in Tull's time it was custom, tradition, " Do as your grandfather did."

In Great Britain, Belgium, and Germany the demand of the growing industrial populations for food and raw materials could not possibly be met even by the most intensive cultivation of the homeland. Supplies must be imported from the predominantly agricultural countries of Europe ; hence Denmark, Ireland, Rumania, Hungary, and Russia expanded their production and export of food. The New World was also called upon, and as settlement spread over the Americas, Australia, and New Zealand, cargoes of cotton, wool, wheat, meat, dairy produce, and fruit crossed the oceans to feed the factories and mouths of Western Europe. In these new areas there was little need for intensive farming, since land was abundant ; but there was need for labour-saving machines to overcome the scarcity or high cost of labour ; and there was need for attention to the quality of the product if it was to find favour in the eyes of European consumers.

**The
Industrial
Revolution**

Machines. Some machines had been invented in the 16th and 17th centuries, but in the 18th century invention was more widespread and more far-reaching in its effects. There was a general search for better methods of doing work ; scientific and commercial societies fostered the spirit of inquiry, kings and parliaments offered rewards, and some manufacturers were enthusiasts for " improvement." But if curiosity was the father of invention, necessity was its mother. Growing population and trade expanded the demand for manufactured goods at home

and abroad. Old methods of production were slow and costly, and many industries could not expand until they had solved some technical problem. For instance, tin, copper, and coal mines could not be deepened until better pumps were available to keep them from being flooded. The smelting of iron could not be expanded until a substitute for charcoal was found. A hand-loom cotton weaver used the yarn made by four spinners, while a woollen weaver kept about ten persons busy preparing yarn. Hence a growing demand for cloth meant that more weavers must be employed, and that for each of them four to ten more yarn-makers must be found. In the knitting industry the same labour problem was experienced. Finally, industries which used power had to rely on windmills or water-wheels; but the wind did not always blow, and streams ran low in summer. Thus at a score of points the important industries were held in check, and their advance was barred or at least slowed down.

In 1733 Kay invented the flying shuttle, which allowed weaving to be done much more quickly, and permitted one man (instead of two) to weave a broad piece of cloth. This made the scarcity of spinners still more acute. A series of inventions by Wyatt, Paul, Hargreaves, Arkwright, and Crompton between 1740 and 1780 enabled one spinner to produce 20, 30, or even as many as 400 threads of yarn at a time, and improved greatly the quality of the yarn. Thus spinning was speeded up; there was now an abundance of yarn and a scarcity of weavers. To meet this situation Cartwright in 1785 applied power to the loom, which had formerly been worked by the hands and feet of the weaver.

These inventions were only the beginning of the textile revolution, and many improvements had yet to be made. Still, by 1800, 35 people, working with machinery, were able to spin as much yarn as could have been spun twenty years earlier by over 1,600 workers. The power-loom did not become really satisfactory for weaving cottons until after 1820, and was not good enough for weaving woollens until after 1850. When it was made efficient, it allowed women to displace men as weavers, and one woman could look after two, three, or four looms. Then, in the late 19th century, Northrop invented an automatic device by which the shuttle, when empty, could be ejected from the loom and a full one dropped into its place without stopping the loom; therefore one woman could look after twelve to twenty automatic looms.

From the textile industries machinery spread to other occupations. The sewing machine, invented in 1846 by an American, Elias Howe, revolutionized sewing occupations, and made cheap ready-made clothes accessible to the poor. Similar machines entered the boot-making trade, and, when supplemented by leather-cutting and other machines, created the modern boot factory in place of the old cobbler, with his lasts, leather apron, and mouth full of nails. Machines were devised for setting type, blowing glassware, cutting and working wood, making coins and cans, and even for doing arithmetical calculations.

Machinery also invaded the metal trades. When James Watt invented his improved steam-engine he found it impossible to get workers who could make the parts with sufficient precision; one cylinder was one-eighth of an inch wider at one end than the other,

and in another there was an error of three-eighths of an inch. If engines, looms, and other machines were to do their work properly, a whole new industry must be built up, capable of making parts which were exactly right in shape and size. The invention of lathes, cylinder borers, and other machines for cutting metals was therefore essential, and the field that once was largely in the hands of the blacksmith was overrun by mechanics, engineers, fitters, turners, and other skilled workers. Most of this advance in ability to shape metals took place in Europe, but the United States contributed important tools and machines. More important still, it made them automatic; the worker had only to feed them and take out the finished article; and some machines were mechanically fed. The aim was to increase the output of each worker, to reduce the need for manual skill, and to replace the possible inaccuracies of the human being by the accuracy and strength of the machine. In the words of a typical American advertisement, "As many as six (machines) can be operated by one man—unskilled at that. Putting on and taking off the work is his job; they (machines) do the rest."

Power. Machines needed power to drive them. Human strength was inadequate for working the cumbrous new devices, so some other source must be tapped. Wind had long been used, as had cattle, horses, and even dogs. Then came water-power, and in the 18th century water-wheels were built wherever there was falling water. We read of one silk mill at Derby (1719), in which 26,586 wheels and 97,746 movements were operated by one huge water-wheel. But water-power

was not available everywhere ; its supply was limited and variable ; and it therefore was supplemented, and then supplanted, by steam.

The value of steam had been recognized in the 17th century, and in 1705-6 Newcomen, a Cornishman, made an engine to pump water out of mines. It became popular, but was slow, cumbersome, and very wasteful of heat. In 1763 James Watt was repairing a model of one of these engines, and began to wonder how he could reduce the waste of heat and the size of the coal bill—for Watt was a Scot. After two years he solved his problem, and patented his improved engine in 1769. Later he made still further improvements, which made it possible for the engine to turn machines as well as work pumps. In Matthew Boulton, a Birmingham maker of metal buttons, buckles, and jewellery, he found an ally, who provided him with skilled workmen and pushed the sale of the engine all over the country. By 1800, 500 Boulton and Watt engines had been erected ; they averaged only 16 h.p., and worked slowly with much waste of power. By 1850 the engine had been greatly improved ; it held most of the field in manufactures, had captured land transportation, and was invading ocean shipping.

During the next fifty years steam was supplemented by electricity, coal gas, oil, and gasoline. Electricity was first generated in fairly large quantities by steam-driven dynamos in the 1870's. It was costly, and was used chiefly for lighting. During the next thirty years better engines (turbines) and generators were developed, the output of current was expanded, the problem of sending electricity long distances over wires was solved, the price fell steadily, and the use of the new

power became more varied. Meanwhile falling water had been harnessed to drive generators. In the 1860's a Frenchman had built the first "hydro" plant to use the water which came tumbling down the side of the Alps, and his pioneer work was imitated in Italy, Switzerland, Germany, at Niagara, and in other areas which had waterfalls or rapids. The electricity made from "white coal" was cheaper than that made from black coal, and was generated in regions which had no coal deposits. After the World War, hydro-electric plants increased greatly in number and size, especially in Canada and the United States; and meanwhile electricity produced by steam-driven generators became almost as cheap as hydro-electricity.

Metals. Steam-engines and machines could not be made of wood. Iron was needed, and when, about 1710, the value of coke fuel was discovered, English ironmasters were liberated from their dependence on charcoal. Now they could increase production greatly and reduce the price. But the metal which ran out of the furnace was *cast* iron; it contained too much carbon and other impurities, was brittle, and would break rather than bend. The next problem was, therefore, to find a cheap way of reducing the carbon content. In 1783-85 Onions and Cort discovered that by "puddling" or stirring the molten iron some of the impurities were brought to the surface, and burned away when they came in contact with the oxygen in the air. What was left was still far from pure, but it would bend without breaking. About the same time rollers were invented for making plates, rails, girders, etc. The ironmasters could now meet the demands

created by the railroad, the engine, and the iron ship, and could supply the machine-makers with metal in abundance. The output of iron in Great Britain grew over seventy-fold between 1740 and 1840.

After cheap iron came cheap steel. Steel could not yet be produced in large quantities, but was made in crucibles, cost £50 a ton, and was used only for tools and cutlery. The problem was that of expelling all the carbon from iron, and then of putting back the specified small amount needed to give steel its properties. In 1856 Bessemer, a professional inventor, solved the problem. He blew a very powerful blast of air through the liquid iron; the air came in contact with all the carbon, which was thus burned out. To the pure iron left in the container—or *converter*, as it was called—a carefully measured amount of carbon was added. Thanks to this simple and cheap process, steel fell eventually to about one-sixth its former price, and the production in Great Britain increased six-fold within fifteen years. Ores which contained other impurities, such as phosphorus, soon yielded to treatment; rival methods of steel-making were evolved, and the iron age gave place, after about 1860–70, to the steel age, with the United States, Germany, and Great Britain as the chief producers.

Since that time metallurgy has grown to be an important science, and research has contributed much to the methods of treating metals. By adding small quantities of manganese, nickel, tungsten, vanadium, or chromium, steel is made tougher, harder, or stronger, and is able to do its work better in machines, cutting tools, springs, armour, shells, etc. Meanwhile the demand for other metals has grown. Copper was

needed by the electricians, tin by the makers of cans, zinc by the producers of galvanized sheets or wire, and gold by everybody. In each case the metallurgists found ways of treating the ore more cheaply, of extracting more of the metal from it, and of rendering profitable the mining of low-grade ore. To-day some gold deposits can be worked which yield only half an ounce of gold from a ton of rock ; and aluminium, which cost \$20 a pound in 1860, is now cheap enough to be made into saucepans.

Science in Industry Since 1700, and still more since 1800, scientists have been making discoveries which proved useful to industry. A physicist helped Newcomen to design his engine. A chemist in 1785 discovered that linen or cotton, which took days or weeks to bleach in sunlight, could be rendered pure white in a few hours by being exposed to chlorine. Davy in 1816 made a lamp which reduced the risk of explosions in coal mines, and Faraday in 1831 laid the foundation of the electrical industry. Since then, countless discoveries have improved the methods in old industries and have brought new industries and products into being, *e.g.* electricity, chemical dyes, rayon, and cellophane.

One of the chief contributions was the discovery of uses for materials that would otherwise have been thrown away. For instance, the scientist turned his attention to the waste products of the gas works. Even in the late 18th century coal was known to be more than a fuel, and by 1800 coal gas was being used in a few places to light houses, shops, and offices. People gaped at the gas-lights in shop windows and

wondered how the storekeeper managed to make the end of a lead pipe burn ; but by 1840 most large towns in England had gas-lamps in the streets and in many homes. Then the chemist experimented on coal tar, a waste product of gas-making, and eventually unearthed hundreds of by-products, ranging from high explosives and disinfectants to ammonia, aspirin, saccharine, wintergreen, and scores of dyes. In the same way he studied the refuse obtained in refining petroleum, and found about 200 different by-products, including drugs, illuminants, lubricants, and vaseline.

**Obstacles to
Progress**

We have described big revolutions in a few paragraphs, but we must not therefore think that the changes were rapid.

At first they came slowly, in the face of great obstacles, and only began to gather speed when, after about 1850, the early impediments had been brushed aside and a growing body of mechanical and scientific knowledge was available. Many early inventions were crude, and had to be greatly improved before they did really satisfactory work. There was often a lack of the necessary capital or satisfactory labour. Watt might have abandoned all hope of making engines if he had not met Boulton ; and Wedgwood confessed that in his efforts to develop the production of fine pottery he was "teased out of (his) life with dilatory and drunken, idle, worthless workmen."

Finally, there was the inertia of manufacturers who were satisfied with the good old ways, and the hostility of workers who saw that their manual skill might be rendered worthless if new methods were introduced or

new commodities killed the demand for old ones. Workmen tried to prevent the introduction of the new machines, mobbed some inventors, asked Parliament to check innovations, and in days of depression they sometimes burned the mills or wrecked the machines which seemed to have taken the bread out of their mouths.

By 1850 most obstacles had been swept aside, the factory system had come to stay, and "improvement" and "progress" became two of the most popular words in the dictionary. Between 1763 and 1852 over 22,000 patents were granted in the United Kingdom, against 1,000 in the preceding 150 years; between 1852 and 1870 nearly 37,000 patents were obtained, and the number mounted higher in later decades. So many wonderful things had been devised that some enthusiasts were convinced all things were possible, including perpetual motion, the abolition of poverty, and a world knit together in permanent peace. Their belief has proved ill-founded on at least these three points; but even the most imaginative prophet of early Victorian days never foresaw some of the material achievements which science has made possible since his day.

While industry and agriculture solved their problems, transportation was revolutionized in two stages. First came the drastic improvement in old facilities—the river, the road, and the sailing ship; but this was followed by the coming of the steamship, railroad, automobile, airplane, telegraph, and telephone. These new devices gave a speed and ease of transportation and communication which

**The
Revolution in
Transportation**

would never have been possible even with the best roads, rivers, or sailing vessels.

Inland Waterways. Improved waterways were needed in order that foodstuffs, coal, and heavy materials could be moved cheaply to places away from the coast, and that fragile goods, such as pottery, might be shipped with fewer breakages. After 1700, rivers all over Western Europe were made more navigable, while the canal systems of France and the Low Countries were improved. In England the demand for coal was growing in the industrial areas, Wedgwood wanted water transit for his clay, and landlords began to see that canals would increase the value of the timber and minerals on their estates. Hence, when a canal linked Manchester with a coalfield in 1761, reducing the cost of coal in that town by half and the freight by three-quarters, an era of canal construction began which in fifty years linked up all the main rivers, gave short cuts from the Irish Sea to the North Sea, and provided the industrial areas with cheap transportation. During the 19th century Germany constructed many canals in order to link her rivers together, and in 1938 completed one which allows small seagoing cargo vessels to steam across country from the Rhine to the Vistula. The United States and Canada were canal builders, seeking to circumvent rapids and waterfalls, or to link up rivers.

Roads. The canal era (1760–1830) was also a period of vigorous road construction in Great Britain. When the Young Pretender invaded England in 1745, and penetrated to within 130 miles of London, English

troops could not get at him quickly because of the poor roads. The government thus learned what traders already knew about the need for better highways, and road-making began on a large scale. Turnpike trusts were formed, composed of local traders and landowners; they were given authority to borrow money and spend it on repairing old roads or making new ones. Then those who used these turnpikes had to pay tolls, and this revenue was to be spent in keeping the road in repair, in paying interest, and repaying the debt. England was gradually covered with a network of turnpike roads.

The revolution in road-making met with two obstacles. In the first place, those who lived alongside a turnpike disliked having to pay tolls when they used it. For a time there were serious turnpike riots in some regions. When the discontent died down, it was discovered that the income from tolls was inadequate to meet all expenses, and that the trusts were unwieldy, inefficient bodies. In the 19th century the toll system was abolished; the trusts were disbanded, the roads were made free for all, and the cost of maintenance was placed on the shoulders of local or central governments.

In the second place, there was lack of knowledge of how to make a good road. The road engineers did not know how to make a durable surface, or to pick the easiest route up the side of a hill. They "used a corkscrew oft enough, but they had not learnt a lesson in road-making from it." Gradually, however, they discovered how to use stone and bind it together under pressure in a good surface, and steam-rollers were designed to apply the pressure. Embankments were

YORK Four Days Stage-Coach.

Begins on Friday the 12th of April 1706.

ALL that are desirous to pass from *London* to *York*, or from *York* to *London* or any other Place on that Road: Let them Repair to the *Black Swan* in *Holborn* in *London* and to the *Black Swan* in *Coney Street* in *York*.

At both which Places they may be received in a Stage-Coach every *Monday*, *Wednesday*, and *Friday*, which performs the whole Journey in Four Days (*if God permits*). And sets forth at Five in the Morning.

And returns from *York* to *Stamford* in two days, and from *Stamford* by *Huntingdon* to *London* in two days more. And the like Stages on their return.

Allowing each Passenger 14 lb. weight, and all above 3*d.* a Pound.

Performed By { *Benjamin Kingman.*
Henry Harrison.
Walter Baynes.

Also this gives Notice that *Newcastle Stage-Coach* sets out from *York* every *Monday* and *Friday*, and from *Newcastle* every *Monday* and *Friday*.

A STAGE-COACH ADVERTISEMENT.

built across swamps, steep gradients were eliminated, bridges were improved, and by 1830 England and France had splendid highways. By that time about 3,000 coaches were running in England, in addition to thousands of wagons. The speed of coaches had crept up from three or four miles an hour to seven or eight ; some drivers dared to run at ten miles, but when the Liverpool to Manchester coach in 1817 did the journey at fourteen miles an hour—which was twice the speed of the royal mail coach—there were loud cries for a magistrate's inquiry.

Railroads. By 1830 canals, rivers, and highways were at their best. But travel on them was still slow ; the canal barge, pulled by horses, moved at less than three miles an hour, and a coach journey of 200 miles occupied nearly two days. Wagon loads were comparatively small, freight rates and fares were high, and as road traffic grew in volume and speed the number of highway accidents became appallingly high. All these shortcomings were repaired with the coming of the railroad.

The railroad came in two stages : the first was the provision of a track on which vehicles could be pulled more easily than was possible on ordinary roads ; the second was the application of steam. Even in the 17th century some coal mines had run their carts on flat wooden strips laid on the ground. In the next century iron plates with an inner flange displaced wood, and then the flange was transferred from the rail to the wheel. On such a " wagon way," coal could be hauled much more cheaply, and it was claimed that on one of these tracks—in Munich (1819)—a woman or child could pull a cart laden with 15 cwt. of goods, while a

single horse was able to do work that would require at least 22 horses on the best ordinary roads. At first it was thought that those who built railroads would merely provide the track, on which people would be allowed to run their own vehicles on payment of tolls, just as they ran them on the turnpikes. It was suggested that coaches should have wheels so constructed that they could run on rails or on the highway. Even after the steam-engine had been adapted for haulage, passenger traffic on the first railway was for nine years carried on with horse-drawn coaches, and private vehicles were permitted to use the track.

The engine came long after the rails. In 1802 Trevithick devised a steam-engine which drew coal trucks at a South Wales mine. Twelve years later Stephenson used an engine at the colliery in which he was engineer, and when in 1821 a company planned to construct a wooden track for horse wagons between Stockton and Darlington, he persuaded it to use iron rails and give steam a trial. This line was opened in 1825; the little engine, weighing 7 tons, drew a load of 90 tons at four to six miles an hour, yet its chimney got red hot; a man on horseback cantered in front of the train to clear sightseers off the track, and a few honoured passengers were allowed to ride in coal trucks. The engine did its work, and the price of coal in Darlington fell by over half.

In 1830 another line was opened from Liverpool to Manchester. On it Stephenson's "Rocket," which was a big improvement on his earlier engines, pulled a train 35 miles at an average speed of 14 miles an hour. In a short time that line was carrying 1,200 passengers a day, and for the next twenty-five years railroad con-

struction was active throughout the country. By 1860 Britain had nearly half as many miles of track as she has to-day, and her example was being followed by most other countries. By 1900 there were 500,000 miles of railroads in the world; by 1914 there were nearly 700,000, but since then there has been little



The opening of the Manchester and Liverpool Railway.

laying of tracks. In less than a century the world had been provided with most of the railroads it needed at a cost of about \$100,000,000,000.

The railways had to fight hard to win the important place they now occupy in the commercial scheme of things. Only slowly did they solve their technical problems. Boilers burst, bridges collapsed, engines

were derailed, gradients were left too steep, collisions were numerous, far more power was wasted than was consumed, wear and tear were costly. Even before the first sod was turned the early British lines had to meet the opposition of vested interests. Turnpike and canal owners, innkeepers, and coach proprietors saw that trade would be stolen from them by "this smoky substitute for canals." Graziers feared that the smoke of passing trains would discolour the wool of their sheep, or that the "rumbling, hissing serpent" would frighten their cattle and prevent them from fattening. Farmers were told their crops would be set on fire, their wheat covered with smoke, and their cows and hens so scared that milk and eggs would not be forthcoming. Landowners saw their fox coverts ruined and their scenery smudged. The press warned passengers of the "fatigue, misery and danger of being dragged through the air at twenty miles per hour, all their lives at the mercy of a tin pipe, a copper tube, or a pebble in the line of way."

This hostility sometimes led to brutal assaults on surveyors and engineers; it caused some towns and landowners to refuse to let the line come near their property. Above all, it provoked long costly investigations and discussions in Parliament before a company got permission to build a line. In 1845-47 over \$50,000,000 was wasted in these inquiries and struggles—enough to have built a very good line from London to the north of Scotland.

But the lines were laid. They ate up too much capital, they made all the mistakes of pioneer ventures, and far too many small local or competing companies were established. Yet they slowly improved, tech-

nically and commercially. Engineering science and metallurgy helped them to overcome the technical obstacles; Bessemer steel allowed stronger engines, bearing higher steam pressures, to be run on steel rails, the average life of which was ten or twelve times that of an iron rail. Signalling devices were improved, the telegraph was adopted to link up stations along the line, special trucks were built for different kinds of freight, breakdowns became more rare, and speed, combined with safety, became a feature of passenger traffic. Greater efficiency was achieved as the many small companies amalgamated into fewer large ones; by linking up local lines it was possible to establish long-distance trunk services under one management. One British line swallowed up 115 smaller ones, and by 1914 the many hundreds of British railroad companies had been reduced to 26 large companies and 93 subsidiary concerns. These were further concentrated by the state in 1921 into four giant companies.

Effects of the Railroads. In old countries the railroads gave better transport facilities between existing centres of population, and in some of them displaced the roads and canals by offering speed, safety, clockwork regularity, and lower freight and passenger rates, as well as ability to move large loads. In parts of continental Europe water and rail facilities supplemented each other, largely because both were owned by the state. In Germany, for instance, nearly 9,000 miles of navigable river or canal and about 35,000 miles of publicly owned railroad were operated as parts of one general system of transportation, giving access to every part



Stephenson's "Rocket" and a modern locomotive.

of the country and reaching out for contact with nations on all three land frontiers.

Some old-world areas, whose development had been checked by climate, mountains, or lack of a coastline, were stirred by the railway into more vigorous life. Russia was a country whose seas were landlocked or were frozen in winter, whose rivers meandered into Arctic or inland seas, and whose soil contained little good stone for road-making. The railroad overcame most of those obstacles, brought the various parts of the country into touch with each other, allowed Russia to expand eastward across Siberia, and gave her produce a more important place in the markets of Europe. The railroad knit continental Europe, and especially that part of it which lay east of the Rhine, into a compact whole, housing in 1914 about 400,000,000 people, and made possible an easy flow of goods between the Arctic Ocean and the Mediterranean, and from the North Sea to the Urals. The British railroad stopped at the coast; the continental line crossed one frontier after another, reached the eastern end of Siberia in 1901, and was pushing its railhead down the road from Berlin to Baghdad when war broke out in 1914.

In new countries the railroad pioneered, and as it went out into the wilds it opened the way for new settlement. How it did this in North America we shall see in a subsequent chapter. In Australia internal communication was difficult because of the lack of navigable rivers. Sheep and cattle could transport themselves, but there must be railways if wheat, meat, wool, and minerals were to be carried to the seaports. In Africa the problem was partly one of covering long distances on the inland plateau that stretched north-

ward from the Cape to Rhodesia ; but it was also that of circumventing falls and rapids on the rivers, and of crossing the unhealthy low-lying coastal belt which formed an almost impassable barrier between the sea and the uplands of the interior. In this belt the tsetse fly killed all kinds of draught animals except the donkey—and donkeys are “especially palatable to lions.” The only possible transport was therefore on the negro’s head or shoulders ; but “as a beast of burden man is out and out the worst. He eats more, gets over less ground, is more expensive, more troublesome, and in every way less satisfactory than the meanest four-footed creature that can be trained, induced, or forced to carry a load.” Once railways came, the tsetse fly could bite the engine to its heart’s content ; the train ran on, and by 1900 Africa was ceasing to be “the dark continent.”

The Automobile. Until the nineties the railroad held unchallenged control of long-distance transit. Then came the gasoline engine, the product of many experiments in Germany and France in the eighties and nineties, and in less than a quarter of a century a powerful new means of transport was built up. France was at first the leading manufacturer and exporter, but the United States took the lead in 1910. Technical improvements came so rapidly that by 1905 the motor car was ceasing to be “as temperamental as an army mule,” and jokes about the relative merits of cab-horses and cars were becoming stale. During the next twenty years the automobile invaded the whole world, and its production became one of the largest industries. In 1938 about 35,000,000 cars and trucks were in use

in different parts of the world ; of these nearly nine-tenths were in the United States, with Canada, Great Britain, and France following next in order, but far behind.

In every land the car or truck displaced the railroad and horse in the haulage of people or goods, for journeys up to 75 or 100 miles ; it supplemented and fed the railroad by establishing radial routes from rail sidings and termini ; it helped the farmer to work his land and transport his live stock and produce ; it dispersed city populations by bringing outlying residential areas into quick contact with the centre ; and it gave rapid, cheap movement over remote areas where railways are unknown. In its growth it stimulated new demands for steel, aluminium, nickel, and other metals, and for glass, timber, and rubber. It brought a new industry into being and revived an old one—road-making—with the consequent demand for gravel, sand, tar, cement, and labour. It made life more flexible, allowed people to move about easily, changed the character of holiday-making and Sunday habits, and gave hospitals and insurance companies more work and worry. It gave value to oil fields, and its appetite for rubber and oil has, on more than one occasion, made those commodities the subject of bitter international controversy.

The Revolution at Sea

While steam revolutionized production and transport on land it also made far-reaching changes in sea travel, though its victory was not so rapid there, since it met with strong opposition from a highly developed type of sailing ship.

The sailing vessel had improved and grown larger

during the 17th and 18th centuries. More masts and canvas had been added, vessels were made relatively longer and looked less like floating bath-tubs, while their carrying capacity grew to 1,200 or even 1,600 tons. The invention of the chronometer about 1770 allowed ships to ascertain their longitude when they were out of sight of land. Cleanliness, better food, and correct diet reduced the heavy sickness and death-rates among sailors. The end of the Napoleonic War in 1815 ushered in nearly a hundred years of world peace, and ships could ply the ocean free from fear of attack. Finally, the rapidly growing trade across the North Atlantic called for more ships and for vessels which could do the journey in less time than had been customary in the 18th century, *i.e.* four or five weeks on the eastward trip and six to nine on the westward passage.

The United States led in improving the sailing ship, and produced two famous kinds of vessels. The first was the *packet* ship, built to carry passengers and some cargo from New York, Boston, or Philadelphia to Liverpool in about three weeks. These ships left port on fixed advertised days—usually the 1st, 8th, 16th, or 24th of the month—whether they were full or not; formerly ships had not set sail till the holds and cabins were full. But the packets could not announce the date of their expected arrival; that depended on the weather.

The second innovation was the *clipper* ship, which began to be built in New York, chiefly by a Nova Scotian, about 1845. To-day we should say that the clipper was stream-lined, for it was built long, narrow, and with a rakish knife-like stem, which cut through

the waves instead of bumping into them as did the broad-bowed English merchantman. Its length gave it room for three or four masts, and hence it could unfurl much canvas and develop great speed. It beat all rivals on routes where "time was money." The first cargo of each year's crop of China tea landed in London always sold at a high price, so there was keen rivalry between the boats sailing from China to the Thames. In this race the clipper always won, and alongside it the British ships were so slow that they were nicknamed "tea wagons." The men who wished to get to the gold diggings of California in 1849 or of Australia in 1851 were willing to pay handsomely for a fast passage; and the clipper met their need. Even on the North Atlantic the clipper had its day, and might make the eastward journey in just over two weeks.

By 1860 the "Yankee ship" had met her match, for English and Scots builders had learned how to produce vessels which were as fast, and were more seaworthy because of their oak or iron hulls. By that date, however, all sailing ships, no matter what flag they flew, were facing a bitter fight with the steamship, and during the next forty years they were elbowed off one route after another. In 1893 the world's steamship tonnage exceeded that of sailing ships; by 1914 it was twelve times as great, and to-day you may take a long ocean journey and never see a big ship flying along under a spread of sail.

The Steamship. During the late 18th century many attempts were made to use a steam-engine for driving a ship, and Robert Fulton brought these experiments

to a head when in 1807 his *Clermont* steamed up the Hudson from New York to Albany. About the same time boats which used sails and paddle wheels began to ply for short journeys on the Clyde and the Thames, and even crossed the Irish Sea and English Channel. Sometimes their boilers burst, for they had poor safety valves. Sometimes they caught fire, for their hulls were made of wood. Yet they proved that a steamship, or rather a steam-and-sails ship, could run a ferry service on short journeys.

But could such a ship make long journeys? Could it carry enough coal and water to get it to its journey's end? And when you subtracted from the volume of its hull the space occupied by the boiler, engine, water tanks, and coal bins, would there be any room left for cargo and passengers? On the answer to these questions the fate of the ocean steamship depended. In 1819 the *Savannah*, a sailing ship fitted with a small engine and using paddle wheels which could be lifted out of the water when they were not at work, crossed the Atlantic in 29 days; but she used up all her fuel in 80 hours, and did the return journey entirely under sail. "We might as well talk of making a journey from New York to the moon" as of making a non-stop steam trip from New York to Liverpool. Thus spoke England's expert, Dr. Lardner. It was impossible to carry enough fuel for the journey.

Yet the impossible happened. In 1833 the *Royal William*, a Canadian-built vessel, used steam and sails from Nova Scotia to England. In 1838 two ships steamed and sailed from Liverpool to New York, and cut the journey down to about two weeks. In 1839 Samuel Cunard, of Halifax, N.S., founded a

company to run a fortnightly service of steamers from Liverpool to Halifax and Boston. Improvement was rapid during the next twenty years ; iron hulls became general, the paddle wheel was displaced by the propeller, and engines became more powerful. Men talked of mammoth iron vessels, and one, the



The *Royal William*, a Canadian-built steamer and the first to use steam all the way across the Atlantic.

Great Eastern, built in 1858, was capable of carrying 4,000 passengers. But she was before her time, and proved a disastrous failure financially. Not till 1901 was another boat built so large.

During the second half of the 19th century improvements in construction made it possible to operate steamships more economically. The coming of cheap



1807
The CLERMONT
A Pioneer American
Steamer 133 ft Long



1812
The COMET
The First Clyde
Passenger Steamer



1838
The SIRIUS
The first Vessel to
cross the Atlantic
continuously under
Steam 208 ft Long
700 Tons register



The GREAT BRITAIN
An early Iron Screw Steamer
Length over all 322 ft
Gross Tonnage 3270
Horse Power 1000



1855
The PERSIA
First Iron Cunarder
376 ft Long over all
Gross Tonnage 3000
Horse Power 3600



1858
The GREAT EASTERN
Length 680 ft Gross Tonnage 18914
Horse Power (Paddle & Screw) 11500



1874
The BRITANNIC (White Star)
433 ft Long Gross Tonnage 5000
Horse Power 5500



1889
The MAJESTIC (White Star)
582 ft Long
18000 H.P. (Twin Screw)
Gross Tonnage 10,000.



1905
The BALTIC (White Star)
708 ft Long Gross Tonnage 24 000
Horse Power 16000



1914 The AQUITANIA (Cunard) 900 ft Long Gross Tonnage 47,000

HOWARD PATTON

The evolution of the steamship, showing relative dimensions.

steel allowed hulls to be built much larger and yet lighter than were those of wood or iron. Engines and boilers were made more efficient, delivering greater power but occupying less space. In the compound engine, introduced about 1855, the steam did its work in one cylinder and then passed to work again in a second cylinder. Hence less water and coal were needed, and steamers could make longer voyages or have more room for cargo. The steam turbine, introduced after 1895, required less steam, fuel, space, and labour; it made less noise and vibration, and offered greater speed. Thanks to it, torpedo-boat destroyers could dash about at 30 to 40 miles an hour, while Atlantic greyhounds could contest for the "blue ribbon" of that ocean at speeds creeping up to 25 knots.

For sixty years steam meant coal, and as coaling stations were established on all the trade routes, ships need take on board only sufficient fuel to get them from one station to the next. Thus more space was saved for cargo and cabins. Yet even then the coal bins were hungry of space, the coal was dirty to load, and those who fed it into the furnace worked under conditions very much like an inferno. When, therefore, in 1904 a vessel steamed from California round Cape Horn to New York using oil fuel, another new chapter in shipping history began. A ton of oil gave nearly 50 per cent more heat than did a ton of coal, and its volume was about one-third less; it was easily taken on board by being pumped out of lighters; it could be stored in places where coal could not be put, *e.g.* in the ballast tanks, and as it was fed into the furnace through sprays, an army of stokers could be dispensed

with. The labour cost of feeding the furnace was reduced by over half, more space was available for cargo and passengers, the dirt and discomfort of coaling were eliminated, and speed could be increased by turning on more oil. Hence even before 1914 new ships were being built to burn oil, old ones had their furnaces altered so that they could use oil or coal, and the leading navies were abandoning coal. To-day about half the world's merchant shipping uses oil fuel.

The Motor Ship. Once the automobile engine became efficient for use on land, it was inevitable that attempts should be made to apply it to sea transit. In 1903 a German, Dr. Diesel, crowned ten years of experimental work by producing a marine engine of the motor type, except that there were no spark-plugs, and that heavy oil was used instead of gasoline. This engine had even greater advantages than the oil-burner, for in addition to saving space, fuel, and labour costs, it needed no boiler or supply of fresh water, took up no room for funnels, and could be easily started. One ton of exploded oil gave the same power as four tons of coal burned in a boiler, and the storage room required for fuel was so small in proportion to the distance travelled that Dr. Diesel claimed that a motor-driven battleship could sail round the world without calling at any port to take additional fuel on board.

At first the Diesel engine was used in areas where coal was scarce and oil plentiful, especially on the Volga and the Caspian Sea. But soon it was adopted in other regions, and in 1910 the *Toiler*, an English-built ship with Swedish-built engines, crossed the Atlantic and entered the grain trade on the Great Lakes. After the

World War Diesel-driven ships began to be built in increasing numbers, and to-day nearly 20 per cent of the world's tonnage consists of motor vessels. M.V. is becoming almost as well known as S.S.

Passenger and Cargo Ships. The most spectacular feature of the shipping revolution was the building of ever bigger, faster, and more luxurious liners for the North Atlantic trade. Competition between British, German, and, later, French companies for the traffic between New York and Europe led to the construction of mammoth floating and fast-moving hotels, such as the *Mauretania*, *Titanic*, and *Vaterland* of pre-war days and the *Queen Mary*, *Normandie*, and *Europa* of to-day. But these giant passenger ferries across the "herring pond" represent only a very small part of the world's shipping services. They carry little cargo, there are few harbours into which they can go, and they enjoy heavy mail subsidies. The greater part of the passenger traffic, even on the North Atlantic, is carried by boats of 10,000 to 25,000 tons, which carry a large amount of cargo, and travel between 350 and 450 miles a day. Then, below the middle-sized liner, which moves back and forth on a fixed route with the regularity and punctuality of an express train, comes the vast fleet of cargo vessels, ranging in size from less than 1,000 to 15,000 tons, and steaming at 7 to 10 knots. Modern ocean commerce is typified by these vessels rather than by the transatlantic floating palaces.

Some cargo vessels keep to one route and call regularly at certain fixed ports. Others are "tramp" steamers, willing to go almost anywhere and carry

almost anything. The bulk of the world's heavy and miscellaneous carrying trade is done by "tramps," and probably half Britain's pre-war tonnage was composed of these vessels. They are small—between 2,000 and 3,000 tons as a rule—and slow, but have large cargo capacity and very economical engines. Wheat, wool, ore, cotton, coal—the cargo matters little. Colombo, Melbourne, New York, Montreal, Hong Kong, all may be visited if there is cargo to be taken or picked up.

Other vessels are built to handle special cargoes. The growth of the oil trade called for the "tanker"; when the Lake Superior iron-ore ranges began to be mined in the latter part of last century, large ore boats, easily loaded and emptied, had to be built to carry the ore down the Great Lakes to Cleveland or Erie; and Britain's coal export trade called for special "colliers." The shipment of live stock across the North Atlantic required properly designed cattle boats, and the shipment of perishable produce needed floating refrigerators. Until the engineers knew how to maintain a steady low temperature in the hold of a ship, the beef of the Argentine and the mutton of Australasia could not be exported; apart from supplying the local butcher's shop, cattle could be reared only for their hides and fat, sheep only for their wool and tallow, while butter and fruit could not be shipped far afield.

In 1880 a cargo of solidly frozen Australian meat was landed in England, and from that date improvements in refrigeration methods allowed not merely meat, but also such other perishables as dairy produce and fruit, to be shipped half-way round the world, through the tropics, and delivered in good condition

at European ports at the end of a five to eight weeks' journey. While the tramp ship revolutionized the trade in heavy cheap commodities, the refrigerated ship revolutionized the food trade. It brought new cheap supplies of perishable products to the crowded countries of Europe, and in 1912 the United Kingdom alone imported 17,000,000 carcasses of beef and mutton. To new countries it gave a vast new distant market for goods that could formerly be sold only locally. North and South America, South Africa, and Australasia benefited especially when Europe thus came within their reach. Freezing works, cold storage warehouses, refrigerated railroad cars, all helped to expand and improve the new trade, while ships were built capable of carrying 150,000 or even more carcasses.

**Further Inven-
tions and
Improvements** The railroad and steamship did much to abolish distance. In this they were helped by the ship canal, the post office, the telegraph, the telephone, radio, and the airplane.

Ship Canals. The Suez Canal, opened in 1869, reduced the journey from London to Calcutta by one-third, or nearly 4,000 miles, and gave back to the Mediterranean some of its old importance. In a good year 6,000 ships may pass through the canal. The Panama Canal was opened in 1915, and created important new sea-routes. It eliminated the dangerous journey round Cape Horn, reduced the distance between New York and San Francisco from 13,000 miles to 5,000, and brought the east and west coasts of America closer together. It also lessened the distance between the Pacific Coast

and Europe ; Vancouver jumped 6,000 miles nearer to London, and thus became another outlet for the products of the western prairies. It brought the Far East and Eastern Australasia nearer to New York than to London, and thus gave American manufacturers and ships some advantage over Europe in those markets.

The Post Office. Postal facilities improved during the 18th century, especially with the growth of stage-coaching, and their provision became recognized as a government duty. Rates were roughly proportionate to the distance the letter had to be carried, and the person who received the letter paid the postage ; but in the eighteen-thirties Rowland Hill analysed the cost of postal service and found that distance made very little difference. The real cost lay in weighing the letter, detecting things that had been enclosed in it, and collecting the money on delivery. Why not charge a flat rate, say of a penny for all letters up to a certain weight, abolish collection on delivery, and make the sender put a stamp on ? In 1840 Great Britain therefore introduced the penny post ; during later years other nations lowered their charges, and when the railroad and steamship provided speed, an efficient, cheap international postal service was evolved.

The Telegraph and Telephone. The telegraph and telephone depended on an understanding of electricity, and by 1840 enough was known to make the telegraph possible. At first it was in the hands of the railways, who used it for their own work ; but public use soon became general. Newspapers realized the value of the new device, and Press telegraphic services

were set up. In 1851 a submarine cable was laid from Dover to Calais ; during the sixties cables were laid to North America and India ; in 1871 they reached Australia ; and by 1900 few people in the world were beyond the reach of the telegraph.

In 1876, in Boston, Alexander Graham Bell, after many experiments at Brantford, Ontario, called over a wire to his assistant in an adjoining room, " Mr. Watson, come here. I want you." The telephone was slowly improved and slowly adopted ; in one Canadian district only one subscriber could be secured, and as there was no one he could ring up he had to be given his money back. Yet on the fiftieth anniversary of Bell's first message people in London and New York talked to each other, and church bells ringing in London were heard across the Atlantic.

The development of wireless was the work of many scientists, whose discoveries were gathered together by Marconi and used for the establishment of long-distance *telegraphic* transmission after 1899. In that year messages passed, in dots and dashes, from England to France ; in 1902 they were sent across the Atlantic ; in 1904 the *Campania* published a daily paper containing wireless news while she was at sea, and to-day few ships lack ears and a tongue. The first successful experiments in wireless *telephony* were conducted in 1906. Nine years elapsed before a voice was sent across the Atlantic, and the instrument that was used required 500 radio tubes. Since then, at an astonishingly rapid pace, the technical difficulties confronting transmission and reception have been solved. Regular broadcasting does not celebrate its 21st birthday till 1941, yet in less than two decades it has become a vast

business, a medium for entertainment, information, propaganda, and advertising.

Aviation. The development of flying began with long periods of failure, and its early progress was marred by bad accidents. The gasoline engine solved the problem of power, but the designing of a satisfactory airplane took a long time. Five years before the war an aviation meeting was largely a study in still life, for 'planes often refused to leave the ground, while the dirigible Zeppelin balloons built in Germany met with disaster after disaster. But the war so stimulated technical advance that the progress in four years was possibly greater than might have come in a decade of peace, and when the conflict ended a fairly efficient vehicle was available.

Commercial aviation is therefore essentially a post-war development. Germany led the way, linked her chief cities with air lines, and established services to the countries round her borders. In 1929 her commercial 'planes flew over 5,000,000 miles, carrying 90,000 passengers and much mail. France, England, and Holland thought imperially, and their lines went out to Africa, India, the East Indies, and Australia. The United States became air-conscious after Lindbergh's flight to Paris in 1927; by 1938 the country was covered with a network of regular services which extended southward over most of Latin America, and westward across the Pacific to Hong Kong. Comprehensive air service came to Canada in 1938, but the 'plane had long before been found invaluable in getting into or out of the mineral and arctic areas of the north.

In 1938 over 3,000,000 people and great quantities

of mail were carried on 300,000 miles of properly organized air routes in different parts of the world. Only three important gaps were left on the air map—across the North Atlantic; from Africa to South America; and across Siberia—and these will probably soon be filled in. The airplane has brought far greater speed than is possible on land; journeys take about four to six times as long on the earth's surface as they do above it. The 'plane's reliability is fairly good, but many trips have to be cancelled in winter. Its safety falls far short of that offered by the railroad and steamship. The cost of air transportation is higher than that of any other form of carriage, and will probably remain so, in spite of heavy government subsidies. The revenue-earning load that can be lifted by the largest machine will always be comparatively small. Finally, the depreciation of equipment is rapid. Hence the service rendered is limited to the carriage of mails and of small parcels or of persons who are in a hurry; but there is still much room left for the extension of that service.

We can now sum up the results of this

Results of the Transportation Revolution	many-sided revolution in the means of transportation and communication. The first was <i>speed</i> . In 1872 Jules Verne startled his readers when he published his novel, <i>Around the World in Eighty Days</i> ; but a novelist who wished to create a comparable sensation to-day would have to get his heroes back home in eighty hours—or even in eight. It must be remembered that there is a limit to the development of speed, the limit of rapidly rising cost. To increase
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the speed of the *Lusitania* from 24 to 26 knots, *i.e.* 8·3 per cent, an additional 50 per cent of horse power was required ; and in every other form of travel an increase of speed beyond a certain point may not be worth the additional cost, wear and tear, and risk of accident.

The second result was *regularity* and *punctuality*. Sailing ships frequently dared not leave port because of rough seas outside, they often made little headway because the winds were contrary, and they might be brought to a standstill for lack of wind. Horses and coaches were stopped or slowed down by rain or snow. But the iron horse and the steamship can defy most kinds of weather, keep to their time-tables, and rarely suffer serious delay. Merchants and manufacturers can be sure that the goods or raw materials they order will reach them by a certain date ; they need not keep great stocks in reserve, and can work " from hand to mouth."

The third result was *safety*, alike for passengers and goods. The days of horse and coach travel were full of risk to life and limb, as is the automobile age. In the palmy days of fast sailing ships, *i.e.* 1845 to 1875, one passenger out of every 900 who left British ports never saw land again. But a serious railroad or steamship accident is to-day a very rare occurrence, while improvements in equipment, refrigeration, and methods of handling and warehousing goods in port or at railroad depots have reduced the risk of loss, damage, or deterioration.

The fourth result was a *change in the character of the commodities of commerce*. Heavy, bulky, or perishable goods of low value can now be taken long distances

at low cost. Canadian lumber can be sold in markets as far away as London or Melbourne. Canadian wheat can be made into British flour, Canadian newsprint is sent to Cape Town and Auckland. The Englishman's larder is stocked with apples from British Columbia or Tasmania, oranges from South Africa or California, lamb from New Zealand, beef from Argentina, canned pears from California, raisins from Australia, and butter from Denmark, Canada, or the Antipodes. World trade to-day is a matter of heavy materials for industry, fuels, food, and necessities for the poor, not of luxuries for the rich.

The fifth result was *the growth in importance of hitherto neglected areas*, both in temperate and tropical regions. These areas were of little use in the eyes of the Old World until it was realized that they could produce important raw materials or foodstuffs, and that those commodities could be brought to the coast and carried cheaply across the seas. The Canadian prairies were almost useless until transportation services were available to take their staple product to the markets of the world ; nay, more, no one knew what the prairies were capable of producing until the railway went into them, just as the mineral wealth of Northern Ontario was unknown until railways were constructed through that region. The dairy districts of Siberia, New Zealand, and Australia ; the rubber, coco-nut, and palm oil areas of Africa and the East Indies ; the oil-fields of Persia ; these and a score of other regions became important only when cheap land and sea transportation facilities allowed people to get to them, and permitted their goods to be taken to the distant markets.

One final result was *the increased mobility of people as*

well as of goods. Political changes gave the populations of continental Europe freedom from their old serfdom, and allowed them to go wherever they wished and practise whatever occupation they could. The French Revolution swept away the last relics of feudalism in France ; Prussia, after her crushing defeat by Napoleon, began in 1807 to reconstruct her society on a basis of personal freedom ; while Russia, after the Crimean defeat, took the drastic step (1861) of freeing her 50,000,000 serfs. In 1825 Britain removed the ban on the emigration of skilled artisans, and slavery was eventually abolished in America and elsewhere. Thus men were now free to go or stay as they pleased, to move from country to town, or to emigrate. But such freedom would have been empty had there not been the railroad and ever-improving shipping services to take the freed men where they wished to go. Many of them went from the countryside to the towns, and some crossed the border into another country. But distant hills were greenest, and between the Battle of Waterloo and the outbreak of the war in 1914, probably 50,000,000 Europeans went out to find homes in other continents. To-day the stream has almost dried up ; the countries which once needed and welcomed immigrants can supply their own labour needs ; they have no more free or cheap land to offer, and the European must therefore stay at home.

Supplementary Reading.—Heaton, chaps. 17–22 ; Day, chaps. 28–32 ; Ashley, chap. 7 ; Dietz, F. C., *The Industrial Revolution* ; Fay, C. R., *Great Britain from Adam Smith to the Present Day*, chaps. 8–14. Each of these books contains references to other books, for the literature on the subjects dealt with in this chapter is enormous.

CHAPTER VI

MODERN ECONOMIC ORGANIZATION AND ENTERPRISE

WE have already seen some of the results of the revolutions described in the last chapter, but there are others at which we must glance in order to round out the picture of the economic life of to-day. As a key, let us take the word *growth*, for the growth of population, of production, and of commerce are the three outstanding features of the story, and especially of that part of it which lies between Waterloo and the World War. During the Hundred Years' Peace the world's population doubled; the value of international trade grew twentyfold; and it has been estimated that the physical volume of production grew nearly tenfold between 1840 and 1914. Each of these growths influenced other sides of life and organization.

	<u>The world's population grew from</u>
Population	<u>900,000,000 in 1800 to 1,800,000,000 in</u>
	<u>1914, and to 2,000,000,000 in 1933 (<i>i.e.</i></u>
	<u>about 120 per cent).</u> That of Europe rose from
	<u>190,000,000 to 460,000,000, and then to 520,000,000</u>
	<u>on the same dates (<i>i.e.</i> about 170 per cent).</u> The
	<u>growth was even more rapid in countries which took</u>
	<u>advantage of the new agricultural and industrial</u>

methods. In these areas—chiefly Western Europe, North America, Australia—goods of all kinds became more abundant and cheap, public and private health improved, and the fear of famine and pestilence disappeared. In the second half of the 19th century especially, wage-earners obtained more abundant and varied food, better houses, more changes of clothing, cheaper soap, and better drinking water. Consequently every baby born not merely had a better chance of becoming an adult, but could also hope to live longer than his grandfather had done. In the last seventy years the death-rate of western countries has been cut in half, but the birth-rate did not begin to fall seriously till after 1900. In pre-war years there were twelve more births than deaths for every thousand Europeans every year. The population of England and Wales quadrupled between 1801 and 1911; that of the German Empire rose from 40,000,000 to nearly 70,000,000 between 1871 and 1914, and that of the Russian Empire from 100,000,000 in 1890 to 150,000,000 in 1914—in spite of considerable emigration from these countries. Where immigrants supplemented the “natural increase” the rate of growth was, of course, immense; North America’s population was about 6,000,000 in 1800, 81,000,000 in 1900, and about 140,000,000 in 1938.

In the Western World this expanding population became increasingly town-dwelling and industrial or commercial. Europe in 1800 was a continent of country dwellers; in England and Wales three-fourths of the people lived outside towns, and in other countries the fraction was larger. By 1900 three-fourths of the English population dwelt in towns; in 1931 two-fifths

of it was in centres of 100,000 people or more ; and over a fifth of it was in Greater London. The same trend was seen wherever industrial and commercial expansion took place ; in 1800 Germany had only two towns of 100,000 people, but by 1914 she had 46. This growth in the relative importance of towns reflected the growth in the relative importance of industrial and commercial employment. In England and Wales to-day only 7 out of every 100 gainfully employed persons work on the land ; and although this distribution is unique, the other fully industrialized countries have only a fifth to a third of their workers engaged in farming. In non-industrial lands, such as Rumania, China, or India, four-fifths or more of the people still live and work on the land.

**The Organi-
zation of
Enterprise**

The Factory System. In 1700 some manufacturers gathered workmen in, but many put the material out. By 1850 the second method was vanishing rapidly in the most advanced industrial countries, and the factory system was becoming the standard pattern for producing goods with the aid of machinery and steam or water-power. The factory might begin in a small way, and remain small, using only a few thousand dollars of capital and employing, perhaps, a dozen or score of workers. But in most industries efficiency called for production on a large scale, with well-developed division of labour, large buildings, and costly equipment. The manufacturing industries of Canada in 1920 had \$5,000 of capital for every worker employed ; a type-setting machine may cost \$6,000, whereas the old supply of letters used by

the hand-setter would to-day cost about \$200 ; and in the " heavy industries," i.e. steel-making, smelting, and machine construction, far greater sums of capital per worker may be laid out.

These conditions made enterprise difficult for the retail craftsman, for the small master, or for the merchant who put out his materials to manual workers. Some of these men were driven out of business, but some of them raked together sufficient capital and credit to buy or rent buildings, install the machines and engines, purchase fuel and raw material, and produce goods in the new way. A partner with a few hundred pounds might be sought ; the family purse was ransacked ; money was borrowed wherever a lender could be found ; and profits—if there were any—were ploughed back into the business. Often the effort ended in failure, but sometimes the reward was success eventually, and from comparatively small beginnings " self-made " men built up large firms and fortunes.

Joint Stock Companies. One-man firms, family businesses, and partnerships carried agriculture, industry, and commerce through all the changes of the 18th century, and many of those of the 19th. They ran the farms, the countless retail stores, most of the wholesale houses, nearly all the textile and hardware factories, many shipping lines, banks, and, of course, such professions as law and medicine. But they could not provide enough capital for the canals which became so popular after 1760, for the railroads which began to be planned after 1820, or for the strong banks which were seen to be necessary after many private banks

crashed in the crisis of 1825-26. Just as joint stock had seemed necessary for distant trade after 1600, so now it was essential where large sums had to be sunk in artificial waterways, railroad tracks, docks, reservoirs, and other costly constructions.

Unfortunately joint stock still lay under the cloud of disrepute brought on itself by the speculative madness of 1719-20, and an outbreak of mining companies between 1823 and 1825 proved again that the promoter might be a scoundrel and the investor a simpleton. No company could gain legal recognition except by the passage of a private Act of Parliament, and the canals and railroads which obtained such laws knew from bitter experience that the procedure was slow and costly. Yet the pressure of need for company organization grew ever stronger, and by 1840 the whole question had to be reconsidered. Some enterprises needed to be able to attract capital. The investor needed limited liability, and, since he would have to entrust his money to directors, he wanted to be able to find out exactly who they were, what they did with his savings, and what were the financial results of their efforts. Finally, those who sold goods or gave credit to a company must know the character and financial position of their debtor. In short, there must be limited liability for the investor, publicity for the benefit of the shareholder and the creditor, and an easy procedure for the floating of companies.

Between 1844 and 1862 legislation met these three needs. A company henceforth could gain legal recognition by registering itself at a government office, and by filing a statement of its aims, financial structure, and directors. It must also publish and file an annual

financial report and balance sheet, properly audited. Thus it took the state and the public into its confidence; the state in return granted its stockholders limited liability. Those who wished to buy its stock could find out what sort of "securities" it was offering for sale, and after they had bought them they could watch the annual statements to see what the directors were doing.

Thanks to these legal provisions the limited liability joint stock company could easily be formed, and proved a great boon. Small heaps of savings could be raked together in large piles, and enterprises were developed which could not have been undertaken by the one-man firm or the small partnership. Transportation, banking, and the heavy industries benefited especially, and in the last years of the 19th century such new industries as electricity, street-cars, and chemical production were in the hands of companies almost from the start. Joint stock was also valuable in financing developments in distant lands, such as railroads in the Americas, mines in South Africa or Australia, ranches in the Argentine or the American West, banks in China, or pulp-making in the Canadian backwoods. In 1930 3,000 companies which were registered in Great Britain operated abroad, while others were both registered and operating overseas. Thus joint stock allowed capital to be gathered up in lands which had supplies and to be exported to lands which had none.

The law did not prevent the abuse of joint stock, for in boom days many companies of doubtful purpose or prospects came into being; and no law could guarantee that the honest companies would prosper or that people

who speculated in stock in their desire to get rich quick would not burn their fingers. Of the "British companies" launched between 1856 and 1883, one half did not keep afloat for ten years, and seven-eighths had sunk or been beached by 1929. The record for other countries is probably no better. The joint stock company did not eliminate risk ; it only limited the amount of risk shouldered by the investor to the loss of the capital he had contributed.

Even that risk was too great for some timid people. They would not invest ; but they might be willing to lend. Consequently, some companies raised part of their capital by borrowing it. They issued and sold bonds, on which they promised to pay a certain rate of interest each year, and undertook to repay the loan at a rather distant date. If they failed to pay the interest when it was due, the creditors, *i.e.* the bondholders, could take charge of the property and sell it in order to get what was owing to them. This was a popular way of raising money for building railroads ; more than a quarter of the capital of British railroads, and more than half that of the American railroads, was obtained by selling bonds. A company need not pay any dividends on its "common" stock in lean years, but it must pay interest to its bondholders every year, and since the war railroads have found this interest burden heavy to bear because of the small amount of income left when they have paid their operating expenses.

Some people who had saved money might be too timid even to lend to companies. Fortunately for them there were borrowers who seemed really safe, namely, governments. Governments did not go bank-

rupt, or were not supposed to do so, but could always raise more money by taxation. They had long been accustomed to borrowing money and selling bonds, chiefly for war. In the 19th century they needed vast sums for peaceful purposes, such as constructing railroads, making roads, harbours, building public offices, and generally developing their territories. They therefore sold bonds in the countries which had savings looking for a safe interest-yielding occupation. Hence the export of company capital was accompanied by a great export of capital loaned to overseas governments. Britain did most of this exporting in the 19th century, and by 1914 her people had about \$20,000,000,000 invested abroad. France had external investments worth nearly \$9,000,000,000, Germany had sent \$6,000,000,000 abroad, and the United States, once a great home for foreign capital, had started to invest and lend abroad. Governments did not always pay their debts, but before 1914 defaults were very rare, and a government bond was usually regarded as a gilt-edged security. After the war, and especially after the depression of 1929 set in, the gilt was rubbed off many edges and several government securities became insecure.

The raising of large sums of capital, the floating of government loans, and the selling of stocks and bonds by people who wished to turn them into cash called for a *capital market*. In London, Paris, Berlin, New York, and almost every large city, stock and bond exchanges were organized. Newspapers gave more space to reports of the daily sales on these exchanges. Banks helped to sell issues of new stocks or bonds to their customers or to the general public, and if they

could not sell them all they kept some of them. Thus it became easier for people to invest their savings ; and it became easier for those who liked to speculate in stocks to indulge in that hazardous pastime.

**Money and
Banking**

The expanding industry and commerce of the 19th century needed improved banking services to take charge of deposits, transfer funds from person to person at home or abroad, and lend money. The practice of depositing money in a bank and of drawing cheques on it spread slowly from large firms to small ones, and more slowly in continental Europe than in England or the United States. In 1870 a small English manufacturer might still pay a £5 debt in another town by cutting a Bank of England £5 note in half, sending one piece by mail to the creditor, and forwarding the other half when he heard that the first one had been received. In 1936 the author of this book found a book store in Bruges which did not have a bank account. In larger businesses, however, payment by cheque had become general long before 1900, and in 1922 it was estimated that less than 1 per cent of the deposits paid into British banks were made in coin or notes. Bills of exchange or drafts bought from banks were the common means for paying debts abroad, and even for making payments at home in France and other parts of Europe where the cheque had not yet become popular.

As lenders, the banks made two general kinds of loans. In the first place, a merchant or manufacturer might wish to borrow money for a short period until the goods he was making or had sold were paid for.

The banker liked this kind of loan, since the money was not out of his hands for long—a few weeks—and he could ask good security. In the second place, a manufacturer might seek help in building or equipping a factory; or a company might need more capital than it could raise by selling stocks and bonds to the general public, and might ask the bank to lend it money, perhaps by buying some of the bonds, or even invest by taking some of the stocks. Such loans would tie up the bank's money for a longer time, and if depositors came rushing in great numbers to draw out their money, the banker might find that he had not enough left in his reserve to pay them. Hence most British and French bankers preferred to confine their lending to short-term commercial loans; but in Germany and the United States banks often made long-term loans, or invested in the bonds of industries, mines, and railroads. Thus we can distinguish between *commercial banking* and *industrial*, or rather *investment banking*.

The early method of lending money was to give notes to the borrower. But in time of boom bankers might issue too many notes, and when the inevitable crisis came they were unable to honour all their printed promises to pay gold on demand; and had to close their doors. Governments therefore decided that the right to issue notes must be limited and regulated. In England the Bank of England was given (1844) a monopoly of the note issue, but beyond a certain point the Bank was required to add £5 of gold to its reserve for every addition of £5 it made to its note issue. Other governments adopted somewhat different methods of regulation; but all had the same aim, and all rested

on the conviction that the number of promises to pay gold should have some relation to the amount of gold that was available. During the Great War these safeguards had to be abandoned by governments which were hungry for money to spend. Notes were issued which were not redeemable in gold and which could be produced so long as the country had any supply of paper left. After 1918 it was not easy to stop the printing-presses, and the paper currencies of Germany, Austria, and some other continental states sank almost to worthlessness. In 1923 a postage stamp in Germany cost billions of paper marks. Gradually and painfully governments returned to sanity. Their notes once more were given a gold backing, the quantity of them was related to the quantity of gold, and people who wished to exchange notes for gold were allowed to do so under certain circumstances, *e.g.* if they wished to send the gold abroad. But the depression which began in 1929 forced most currencies "off gold" again, and in 1938 there were few lands in which a person who wanted gold could get it.

The Gold Supply. From the above paragraph it will be evident that the 19th century "worshipped the golden calf." This calf, like all its kind, had four legs. In the first place, gold was as much desired as ever it had been for rings, jewellery, watch-cases, etc., and later for dental work. About half the gold mined during the last hundred years has been "poured down the sink" into oriental ornaments or hoards, or has been used by western goldsmiths, jewellers, and dentists. In the second place, gold was wanted for coins, and was preferred to silver because it contained

greater value in smaller weight. An ounce of gold was worth about \$20, but \$20 in silver would weigh about a pound, and in South America people who wished to take much silver money around with them had to employ a slave to carry the bag full of silver dollars. In the third place, gold was wanted for bank reserves or as backing for notes.

Finally, gold might be wanted for export to buy goods, pay debts, or make an investment or loan. International transfer of funds was usually made by sending a bill of exchange or a draft, but it might sometimes be cheaper to ship and send gold than to buy a bill. After 1871 most currencies were on the *gold standard*; each country had fixed the weight of its chief coin in terms of a certain number of grains of gold. It was, therefore, easy to calculate how many gold coins of one country were equal in value—*i.e.* in the number of grains of gold they contained—to a certain number of gold coins of another land. In pre-war days a British gold sovereign could be sent to New York to pay a debt of \$4.86; to Paris to pay one of 25.22 francs; to Berlin to pay 20.43 marks, and so on.

If gold was to render these four services a great and growing amount of it must be available. Fortunately there were several important gold discoveries during the century. Gold was found in California in 1848, and in Australia in 1851, and these "finds" were so rich that the gold output between 1850 and 1875 equalled that of the preceding 350 years, *i.e.* since the discovery of America. After 1875 both fields showed signs of exhaustion and production fell off; but after 1885 new refining methods and the discovery of gold deposits

in South Africa, Alaska, the Klondike, Western Australia, Mexico, and Ontario sent production up to record heights. South Africa was by far the richest field, and by 1930 had yielded \$5,000,000,000 of gold. But the other areas helped, and as much gold was taken from the ground between 1900 and 1930 as had been extracted in the four centuries since 1492.

About half of this metal was added to the world's currency and credit equipment. The stock of "monetary gold" resting in bank vaults or circulating as coin rose from about \$2,000,000,000 in 1840 to \$11,000,000,000 in 1929. Mints could augment the quantity of gold coins, and in pre-war England sovereigns and half-sovereigns were in wide use, while paper money was almost unknown in retail trade. The banks which issued notes could increase the quantity available. Commercial banks could increase their loans as their reserves of bullion, coin, or notes expanded; and since they could no longer lend by handing out their own notes, they lent by allowing a customer to draw cheques up to the amount of the loan. In these various ways the expansion in the gold supply increased the spending power of the people; but if the supply of goods did not increase in proportion, prices were likely to rise. Periods of rapidly increasing gold production, such as those after 1848 and 1896, were periods of rising prices; but when gold production fell off, as it did after 1870, prices also dropped.

In pre-war days gold served chiefly as a bank reserve and a coin metal; it *could* be used for international payments, but was used very little. After the war, when countries got back to the gold standard, gold had ceased to be used for coins, was still the important

bank reserve, but became much more important for international transfers of money. We cannot explain in detail why this happened ; it must suffice to say that great new payments of interest had to be made, especially on money lent by the United States to the Allies during the war and to other countries after 1918, that some countries were not able to sell their goods easily abroad in order to pay for the imports they needed ; that some people were afraid of revolution or ruin at home, and therefore sent their money abroad to find a refuge ; and that in consequence there were not enough bills and drafts available to meet all the needs of those who wished (or were obliged) to transfer money. Hence gold had to be sent ; it flowed out of some countries, and went to France and the United States in great quantities. By 1929 Paris had one-fifth and New York two-fifths of the world's stock of monetary gold ; but the supply held by the banks in other lands had stood still or declined, and the banks were therefore unable to increase their loans or were forced to reduce them, thus injuring trade or preventing it from growing.

This drain of gold continued after the crash of 1929, and in 1931 Austria, Germany, Britain, and many other countries were getting so short of gold that they had to forbid the export of any more. In early 1933 the United States did likewise, ordered all gold to be handed over to the Treasury, and then reduced the number of grains of gold to the dollar by about 40 per cent. An ounce of gold, once worth \$20, was now worth nearly \$35.

At this price gold mining became much more profitable in all parts of the world, and production rose

50 per cent in four years. The new gold continued to flow to the United States, and by 1938 over half the world's stock was stored in a great vault in Kentucky. It was not being fully used as a base for bank loans ; if it had been, the borrowing and buying power of the American people would be so vast that a mighty boom would be caused, followed by a terrible collapse. The government was therefore obliged to try to "manage" the currency and credit situation because it had too much gold. In Europe governments were trying to manage currency and credit because they had too little.

**Marketing
Methods**

The growth in the volume of production made it necessary to improve old marketing methods, to search for new ones, and to engage a veritable army of middlemen. The most obvious features of these developments are the array of stores lining our streets, the myriads of gasoline stations, the vast display of advertisements, and the bulky catalogues of the mail order houses. In 1930 there was one retail store for every 75 or 80 persons in the United States, Germany, and Britain. Behind this wilderness of shop windows was a large complicated organization of wholesale trade, of warehouses, cold storage plants, elevators, offices, and the whole machinery of transportation. Consequently, in the Western World 10 to 14 per cent of the gainfully employed are occupied in wholesale or retail trade, and another 6 to 10 per cent are engaged in transportation or communication. One-fifth of the workers in some countries are engaged in transferring goods from one place to another, and from one owner to another.

It is rarely possible to-day for the producer to sell direct to the consumer as he did in the medieval market or fair. Farmers may still take their butter, eggs, vegetables, and poultry to town and sell them in the market-place on appointed days, and such markets survive in most small towns in Europe and in some in Canada. But few homes obtain their supplies in that way. In industry the retail craftsman has become rare; but some large manufacturers have established their own retail "outlets," and sell clothes, shoes, gasoline, and a few other articles direct to the public, while the builders of warships, airplanes, cannon, and other special goods deal direct with the consumer.

Most of the rest of the world's buying and selling has to be done through middlemen, and goods often pass through several hands between the producer and consumer. The middlemen may buy the goods at one price, and hope to sell them at a better one. Or they may sell on behalf of producers who wish to dispose of goods, or buy for those who wish to obtain supplies, receiving a certain percentage of the price as payment for their services. In such cases they are called agents, commission merchants, or brokers, and handle goods consigned to them, or orders entrusted to them. The broker may sell consignments privately; he may hold auction sales to which buyers are invited, and these auctions have played a large part in developing the trade in cattle, tea, wool, fruit, and many other commodities; or he and his fellow agents may establish a continuous market, open for some hours each week-day, in which they are willing to buy or sell a certain kind of commodity on behalf of their patrons. The

best known of these organized markets are those in which stocks, bonds, wheat, cotton, and some metals are sold. Liverpool, Chicago, and Winnipeg have the chief wheat exchanges, while Liverpool, Manchester, New York, and New Orleans are the most important cotton markets.

If all the goods sold in the markets had to be taken there and displayed for inspection by the potential buyers, there would be a great waste of time, huge transportation bills to and from market, and gigantic buildings or open market-places would be required. A man who buys a horse wishes to examine it carefully beforehand, but some of the great commodities of commerce, especially the foodstuffs and raw materials, are of such a character that we can grade them into a few classes or qualities, such as Number 1 Northern, Number 2 Northern, and so on in the case of wheat, or Good, Good Fair, Fair, Middling, and Inferior in the case of cotton. The grade may vary with the kind and quality of the product, its degree of cleanliness, the skill with which it has been prepared for market, and other technical considerations. Hence a person who orders a certain quantity of a certain grade knows what he will get without seeing it beforehand, and the goods can come straight to him from the elevator, warehouse, or factory.

The practice of buying and selling by grade goes back to the 18th century, or even earlier. A Butter Exchange, opened at Cork in Southern Ireland in 1769, graded butter and stamped it with a brand mark. After 1800 the cotton market in Liverpool established several grades, and by 1850 wheat was being graded in the United States. The first Canadian law on the

subject was passed in 1863, and acts of 1889 and 1891 set up a board to fix the grades for western grain. Not all commodities are capable of being graded and bought unseen ; wool, for instance, varies greatly in kind, quality, etc. Hence wool-buyers may wish to have the bales opened, or have samples taken from them before they bid at the auction sale. Yet there have been attempts to grade wool, and during the 20th century some governments have encouraged the grading of such goods of varying quality as dairy produce and eggs, fruit, vegetables, meats, tobacco, hay, and canned goods. Such steps have simplified the trade in them, have saved the cost of carriage to or from market, and have encouraged producers to improve the grade of their wares.

While grading simplified the wholesale marketing of many primary products, retail marketing was also simplified by the coming of branded standardized goods. During most of the 19th century the retailer often prepared, blended, weighed, measured, and packed the tea, coffee, tobacco, beer, flour, and other things that he sold. The grocer's shop was filled with barrels, bins, boxes, sacks, drawers, bottles, and other containers from which the commodities bought in bulk were taken, in the amounts required by the customer ; the butcher's shop was festooned with carcasses of animals which he had slaughtered and dressed, or with sausages which he had made ; and the drug store contained countless bottles and jars bearing mysterious labels and containing solid or liquid chemicals. But the growth of meat packing, food, drug, and tobacco firms, and the expanding advertisement of the products of their factories changed all this. Consumers got into

the habit of demanding "nationally known brands," and the storekeeper's job became largely that of selling the packages, cans, bottles, or bags of goods he bought from the factory or wholesaler.

Co-operation. In a perfect world every buyer will feel that he has got plenty of value for his money, while every seller will be satisfied that he has got plenty of money for his value. In our imperfect world, however, this mutual satisfaction has often been lacking. In all centuries and countries, consumers have denounced the greed, covetousness, fraud, deceit, and general hard-heartedness of those from whom, or through whom, they bought. Producers, especially small ones, have grumbled at the men to whom, or through whom, they were obliged to sell, and at the banker, manufacturer, or transporter on whom they had to depend. This dissatisfaction has led the discontented to take steps to strengthen their position as buyers or sellers, or as both; and four such steps are worthy of brief examination.

The first was taken by wage-earners, whose scanty earnings did not go far when turned into food and clothing. The cause seemed to be that prices had to be high to provide a profit for the middleman who sold the goods and for the manufacturer who made them. The remedy was clear: let the consumers co-operate, pool their savings to establish a store of their own, and later to open factories or acquire farms. Thus profit would be wiped out, for you cannot make a profit out of yourself. This *consumers' co-operation*, after some false starts, began a successful career when in 1844 twenty-eight flannel weavers at Rochdale in

Lancashire subscribed £1 each to the capital of their tiny society. With this money they opened a grocery shop. They sold to themselves at ordinary market prices, and paid a fixed rate of interest on their capital. Then the money which was left, when all expenses and interest had been paid, went back to the pocket from which it had come as a dividend in proportion to the amount of goods purchased. That dividend would normally have gone to the storekeeper as profit.

Rochdale's example was copied by wage-earners in other industrial towns, and the movement advanced so rapidly that in 1863 the societies combined to form a wholesale society, which would buy in bulk the goods the stores required. From co-operative 'wholesaling' it was a natural step to manufacturing, insurance, and banking. To all these activities the same methods were applied; capital was contributed by the consumers, or rather by their retail societies; it received a fixed interest, and any surplus left at the end of a year's banking, insuring, or manufacturing went back to the consumers' pockets. In 1938 nearly 7,000,000 members were enrolled in the co-operative societies of the United Kingdom; at least half the population obtained many of its necessities, comforts, and luxuries from this huge organization. Co-operation took deep root in other parts of Europe, and since 1930 has made some progress in North America.

The second effort to improve the results of buying and selling was made by small farmers. These men had three special grievances. (1) Each of them bought seed, implements, fodder, fertilizer, etc., and borrowed money in small quantities, at high prices. (2) Each of them processed his product on a small scale, and could

not afford the most efficient plant or machinery, *e.g.* for making butter or curing bacon. (3) Each sent small quantities of goods to market, and had to rely on agents who might charge him high fees or take little pains to secure him a good price. If, however, these small farmers co-operated, they could buy in bulk more cheaply ; they could set up a bank and get loans at a lower rate of interest ; they could build their own butter factory ; they could employ their own servants to sell the product or force the commission agents to give them better terms ; and if the market was glutted and prices were low, they could withhold their goods until conditions were more favourable. Thus they could reduce expenses as buyers, processors, and sellers, and receive a larger net income.

Agricultural co-operation of this kind began in Germany with a village co-operative bank in 1862, and in Denmark with a co-operative dairy in 1882. Later on, societies were set up to cure bacon, collect and pack eggs, export and sell produce, buy fodder and fertilizer, crush olives, make wine, and rent or buy land. In Germany alone there were 36,000 co-operative banks in 1930 ; Denmark, Ireland, New Zealand, and every other land of small farmers had countless societies at work, and the movement has become strong in some parts of North America.

Integration. The third kind of effort was made by large manufacturers, especially in the iron and steel industry. In the early days the steel-maker bought ore, coal, and limestone, and sold steel to plate- or wire-makers, shipbuilders, and other firms to whom steel was a raw material. He might have trouble in

getting his raw materials cheaply and in finding a sure and profitable market for his product. He therefore began to acquire his own ore and coal mines, and to set up, buy, or at least gain control over plants which used steel. One Sheffield steel-maker reached out and took possession of every process and source of supply, from mining ore in Spain to making cannon, shells, and ships, and by 1910 boasted that he could build a dreadnought or an Atlantic greyhound without being dependent at any point on outside firms. In similar manner newspaper proprietors obtained paper-mills, clothes-makers got textile mills and clothing stores, while automobile builders absorbed firms which had formerly sold them bodies, springs, engines, and electrical parts. By such *integration* the firm reduced its dependence on others, eliminated some purchases, sales, and middlemen, and could hope to be more efficient and expect a richer reward.

Combination. The fourth effort sought to make selling more satisfactory by restricting or eliminating competition between rival producers or traders. The 19th century worshipped at the altar of competition. Competition was regarded as the law of life, the life of trade, the spur to progress. Under free enterprise it would lead to improvements in the methods and efficiency of production and sale, and hence to lower costs to the consumer. He who served the community best would profit most, while Satan (or the bankruptcy court) would quite properly take those who lagged behind.

The 19th century practised what it preached. Governments abolished most surviving monopolies,

swept away the last of the guilds, reduced tariffs, and relaxed or repealed Navigation Laws. Improved transportation widened the area over which rivals could compete. New industries and methods competed with old ones; the railroad fought the turnpike and the canal, the steamship attacked the sailing vessel, and the shoe factory bore down on the bootmakers' small shop. Inside almost every industry or trade competition was keen, and in the labour market men, women, and young persons might wrestle for jobs.

Experience quickly showed that free competition *might* have all the beneficial effects claimed for it, but that it was often wasteful in its methods and destructive in its results. It was wasteful when there were too many competitors, each with buildings, equipment, and staff working at less than full capacity. It sometimes destroyed firms that were worth preserving, led to unfair and underhand practices, encouraged unscrupulous methods, and provoked some manufacturers to adulterate or otherwise lower the quality of their product in order to be able to sell it at a lower price. All too often it was waged not as a game with rules and gloves, but as a war in which one must kill or be killed; but wars are costly even to victors, especially if they emerge crippled and loaded with debt.

Throughout the last half of the 19th century attempts were made to limit the destructive effects of competition or to eliminate it altogether. Wage-earners were the first to make the attempt, and the labour unions they built up after 1850 were based on the principle that competitors for jobs should not sell their labour at less than a certain minimum price. The union fixed a standard wage, below which no member was to work;

it fixed a standard working day, and no member was to work longer than that period except on payment of higher rates of pay for overtime. Sometimes the union sought to limit the number of men competing for work by trying to persuade or force employers to engage only union members, and it might try to limit the number of men coming into the industry by demanding a period of apprenticeship. Competition still survived, even in industries which were fully unionized; the good workman had a better chance of work and wages than the inefficient fellow; but competition could no longer push down the price at which men sold their labour.

Manufacturers, traders, banks, and railroads applied the same principle to their brands of competition. They were driven to do so by some severe depressions between 1870 and 1900, by a fall in the general price level, and by the sheer need for checking the cut-throat competition which prevailed. At one time rate-cutting was so fierce between Kansas City and Chicago that the rival railroads carried passengers over 400 miles for 25 cents, and on the Australian coast a shipping company offered to take persons a two days' journey free if they would provide their own food and bed-clothes. Rivals therefore began to feel that perhaps co-operation was the law of trade. Once that admission had been made, joint action was possible along three lines.

(1) *Agreements*. Rivals agreed to submit to certain restrictions. A minimum or fixed price was imposed on all sellers. A maximum output might be allotted to each producer, so that the market would not be

glutted. Or the market might be divided into districts, and each firm was given a monopoly of one zone. Such agreements are found all over the world to-day. They began at least as far back as 1592, when the coal-dealers of Newcastle formed a "Vend" to restrict output and maintain a minimum price for coal. There were some in the 18th century, but after 1870 agreements were made for almost every kind of trade or service on both sides of the Atlantic. Banks agreed to charge uniform rates for the services they rendered, railroads fixed common freight and passenger charges, while conferences of shipping companies established uniform passenger and cargo rates on most ocean routes. British and American tobacco interests divided the world's smokers between them, while other international agreements controlled the trade in aluminium, light bulbs, and a hundred other commodities. After the war so many local, national, and international agreements were reached that it became hard to find a metal, manufactured article, or service which was sold under completely free competition.

(2) *Kartells*. The two chief weaknesses of these agreements were the difficulty in getting *all* the rivals to agree, and in getting the agreeable rivals to keep their word. It was difficult to detect offenders, and hard to bring them to punishment, for in some countries (especially Britain and the United States) the law refused to recognize the agreement as binding, since it was "in restraint of trade." If those who gave their word could not be trusted, the best remedy seemed to be to take the selling out of their hands and entrust it

to some central office which would handle the goods of all the parties to the pact.

Central selling bureaux were first and most successfully established in Germany, and were known as *kartells*. In 1906 nearly 400 of them were at work, and in 1932 the number had risen to 2,400. The most famous was the Westphalian Coal Kartell, set up in 1893 to sell the product of 170 mines on one of the richest coalfields in Europe. Agreements had been tried, but had been flagrantly broken. Therefore a bureau, set up at Essen, allotted each mine a fixed maximum output, and took over the task of selling all the coal produced by the members of the kartell. It was thus able to reduce competition almost to vanishing point in the Essen area, and get better prices; but farther afield it had to face the rivalry of Belgian, British, and other German mines, and sold coal there for whatever price it could get.

(3) *Amalgamations*. The kartell succeeded in Germany, partly because the law recognized it; but it made little headway in other lands. In the United States, and to some extent in Britain, the movement away from competition tended to jump from agreement between rivals to amalgamation. Sometimes one aggressive firm swallowed the others by buying them out instead of killing them; at other times the union took place on friendly terms, or a new company—a *holding company*—was set up to hold and pull the strings, which steered the policy of the “subsidiary” companies in their producing and selling. No matter what the method, the result was usually the same: competition was reduced, and in addition the larger

scale of operation might allow the firm to become more efficient at many points.

Amalgamations were most numerous and important in North America (see Chap. VII.), but took place in other countries as well. In Britain the number of private banks was reduced from 37 in 1891 to 6 in 1914, and that of joint stock banks from 106 to 34. Since 1918 the number has been further reduced, and 90 per cent of British bank deposits are now held by five big banks, which work together in close agreement. In 1921 the British railroads were merged by the state into four giant companies. A Glasgow thread firm has since 1895 gradually built up a virtual monopoly of the world's production of sewing cotton, and an English soap firm has become master of most of the world's soap and margarine supply. In 1933 two large Atlantic shipping companies amalgamated in the Cunard White Star. In Germany the steel, electrical, and chemical industries are in the hands of companies which have attained vast size by growth and amalgamation, while the world's gasoline and oil trade is dominated by three or four Dutch, British, and American concerns and hundreds of "subsidiaries."

Sheer bigness is, of course, no guarantee of stability or success, and it is rarely possible to monopolize the market completely for a long time. Mistakes are just as possible in giant as in pigmy firms. The greatest depression in the world's history came at a time when far more industries were in the hands of huge corporations than ever before. Even if all attempts at agreement or combination had proved successful and profitable, there remained one field where neither was possible. That field was agriculture. Millions of

farmers, scattered over many continents, produce small quantities of goods. Each decides for himself what he will do; each may increase his output when prices improve, but is loath to reduce it when they fall. Hence a period of good prices causes the yield of farm products to rise greatly, and when the inevitable fall comes distress stalks the countryside.

Until post-war days little was done to help the farmer out of his troubles, except raise the tariff on imported foodstuffs; but this did not help the man who produced for export. Since 1920 some farmers have co-operated in the hope of influencing prices (see Chap. IX. for the Canadian effort), and have also sought government aid in restricting the quantity of produce to be grown, marketed, or exported. Brazil in 1905 began to buy part of the coffee crop, and kept it off the market in the hope that the price of the rest of the supply would be raised. In 1922 the British Government made the amount of rubber that could be exported from Ceylon and Malaya vary with the price. In 1931 Cuba and other sugar-producing countries tried to repair the damage done to sugar prices because of an increase of 70 per cent in the crop during the preceding decade. They agreed to reduce the acreage of sugar beet and sugar cane, restrict output, and limit exports. In England, Canada, and the United States various attempts were made after 1932 to reduce or restrict output, to control imports, to guarantee a minimum price, and generally to help the farmer to get a better return by bringing the supply of produce down to the demand for it. Thus free enterprise is restricted by the state in occupations where it cannot restrict itself.

Chain Stores. It would be difficult to walk down the main street of any town in Great Britain or North America without finding a chain store. Sixty years ago it would have been just as difficult to find one. The 19th century devoted much thought, ingenuity, and capital to building up large-scale industry, transportation, and wholesaling, but was slow in turning its attention to the improvement of retail distribution. The individual small store, run by a private trader, held the field. The co-operative society was the first attempt to invade his territory. Then after 1850 some large department stores, selling many different kinds of goods in different parts of one building, came into existence in the larger cities. Paris seems to have had the first ones, and as these were copied elsewhere it was possible for a customer to get many sorts of goods without going from shop to shop. Then came the mail order store, which sent by mail or express the goods ordered by farmers, villagers, or small townspeople.

Yet the small store continued to flourish. But some small ones grew large and profitable, and a store-keeper who had made a success of one shop might decide to establish a second one in another part of the town or in another town. As profits accumulated, he opened more shops, until the chain had many links. For instance, Thomas Lipton, son of a Glasgow grocer, opened his own store in 1871, but by 1898 he had 245, and eventually his firm had nearly 500 shops, which were supplied from its own warehouses and factories in England, and from its own cocoa, tea, and coffee plantations overseas. In Britain, as in North America, chain stores took up the sale of tobacco, drugs, dairy produce, clothes, shoes, or of miscellaneous

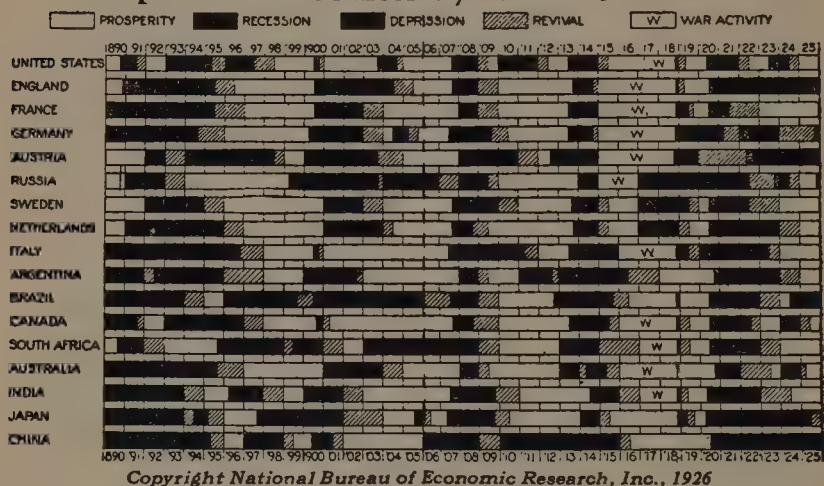
small articles at such standard prices as a penny, nickel, or dime. Some chains just grew, but others were planned from the beginning, or were introduced into Europe from the United States. They bought or made goods in bulk, sold for cash, did not deliver purchases, and therefore were able—or should have been able—to sell their wares more cheaply than did the independent small store. Their greatest growth came after 1900. In 1929 the chain stores in the United States did one-fifth of the country's retail trade; in Great Britain they handled one-seventh, and nearly twice as much as did the co-operative societies. But the combined sales of the department stores, chain stores, and co-operative shops was still only two-thirds of that done by individual retailers in the United States, and a third of that done by them in Great Britain.

Students who have grown up during
the nineteen-thirties scarcely need to
be told that economic enterprise is not
always flourishing and prosperous. Its
history has been marked by a wave-like alternation of
boom and depression. There have been periods of prosperity, marked by plentiful employment, increased investment, rising prices and wages, expanding production, full railroad cars and ship-holds, and a general atmosphere of optimism and exuberance. "All's well with the world." But these conditions have always given place, rapidly or gradually, to hesitation, doubt, or even panic, and to a complete change in outlook. Bankruptcies become common, unemployment rises, wages and prices fall, investors become unwilling to

Booms and Depressions

subscribe to new ventures, ships are idle, the production of metals and machinery almost dries up, doleful speeches are made at stockholders' meetings, and a widespread sense of stagnation and pessimism prevails. The country seems to be "going to the dogs." Then after a while there dawns a more hopeful day; men venture forth once more with reviving

Conspectus of Business Cycles in 17 Countries



courage, apathy is displaced by confidence, and prosperity comes round again—only to be followed by a boom and a relapse into depression. So the circle—or the *business cycle*, as we call it—has gone round time after time. People sometimes talk of "normal conditions," but there is no such thing as normal conditions. Conditions are always either getting better or getting worse.

These fluctuations are not peculiar to the modern world; we can trace them back to at least the 16th century. In 1622, for instance, there was a serious

depression in England, and one employer offered to "live by browne bread and water rather than that his great number of poore people should want work if he had means to keep them in work." The American Revolution prostrated some British industries, and John Wesley in his travels in 1775 found that many people had "perished for want of bread; others I have seen walking up and down like shadows." In modern times the depressions have been more serious and far-reaching in their effects, for nations have become more dependent on each other and a depression which starts in one country spreads suffering to the lands with which it has trading connections.

Economists have sought diligently for explanations of the business cycle, and the search is far from ended. Probably no single theory will ever be adequate, for a depression, like sickness, can be due to any one of a number of causes. When an automobile stops, there may be a hundred different reasons, from a broken part to an empty gasoline tank. So also it seems to be with the slowing down or stopping of the economic machine. But one general cause may be stated. A depression is the result of a boom; it is the price we pay for errors, excesses, misjudgments, and over-enterprise during the hectic days which preceded it. Let us divide this general cause into two parts.

The first is the innate optimism of the business world. When times are good, most men think they are going to get even better. If prices are going up, they will surely go still further. If existing firms are making good profits, new firms can surely make them. If one breakfast food becomes popular, then others can do the same. In time of prosperity men hopefully

plant more wheat, erect factories, install machines, produce more goods, float companies, lay down railroads, and open stores. They view the future through rosy spectacles, and forget that if a balloon is blown up too much it bursts. Confidence begets over-confidence, optimism becomes excessive, the risks taken grow too large, and caution is thrown to the wind or the wolves.

This rush to share in the good times and the big profits affects all kinds of enterprise, stirs farmers, miners, manufacturers, and merchants to expand the volume of their production and trade, and makes the speculator in stocks or commodities work at full speed. Usually it finds a special attraction in some new industry, product, market, method, or field of investment. The first boom of the 19th century was overstimulated by the belief that the newly liberated Latin-American republics would be a gold mine for merchants, mining companies, and investors. British capitalists made loans to the governments or bought mining shares, and merchants sent out large consignments of goods, including such things as skates and bed warming-pans—to a tropical land. This crazy boom collapsed in 1825 when some governments did not pay their interest bills, when the mining companies failed to produce minerals, and when the goods could not be sold. In the forties the royal road to wealth seemed to be investment in British railroad stocks; in the fifties it was American railroads, and in the sixties the new limited liability joint stock company seemed to be a wonderful device for making fortunes. In later years each boom was marked by interest in some novelty, such as the bicycle, oil fields, rubber planta-

tions, automobiles, prairie land, blocks of flats, radios, skyscrapers, or the amalgamation of companies into holding super-corporations.

The second cause of depression is financial excess and misjudgment. When activity is growing more vigorous the banking world is infected by the reviving optimism, and increases the quantity of its loans to customers. This loan money increases the buying power of borrowers, expands the demand for goods, helps to raise the price level, and therefore fortifies the confidence of those who buy in order to sell at a higher price. Eventually, however, the banker begins to wonder if he has not gone too far and lent too much money in view of the size of his reserves. When this happens he begins to pull in his horns, refuses to grant new loans, and calls in some of those he has made. This action frightens or at least embarrasses his borrowers, for they may be able to repay their loans only by selling the goods they are holding "for a rise" at an actual loss. By doing so, they break the price level, and the general scamper to turn goods into cash may bring all prices tumbling down.

Often the tide has turned before the banks act; there may have been over-production of some goods, or the community may become unable or unwilling to go on paying ever-higher prices. Some over-ambitious or under-scrupulous scheme may fail, new companies may prove to be fraudulent or unprofitable, speculation in land, stocks, or commodities may collapse, a bad harvest may come, or war may threaten. A government may repudiate its debts, increase taxation, or withdraw from the borrowing and spending market. A period of active construction of buildings,

railroads, machines, engines, etc., may come to an end. But whatever the immediate cause, the result is usually the same ; all the graphs, except those of unemployment and bankruptcies, turn downward, and a period of depression follows.

The 19th century is full of instances of this ebb and flow. British business turned from good to bad in 1825, 1836, 1847, 1857, 1866, 1873, 1882, and 1893 ; but there were smaller ups and downs inside each of these nine to eleven year periods. In the United States the business curve swooped downward seriously twelve times between 1815 and 1914, and slipped gently at least five or six times. Every other country had similar experiences, and pondered deeply about methods of making the fluctuations less severe. Bankers learned that by standing together they could prevent financial crises from turning into panics, and perhaps could do a little to "iron out" the fluctuations, making the boom more moderate and the depression less deep. On the eve of the war optimists were convinced that acute depressions were now things of the past, and even the pessimists might admit that henceforth business would slide gently from prosperity to stagnation instead of falling over the edge of a precipice.

The post-war years proved them both wrong. Some parts of the world experienced their greatest boom during the late twenties, and then the whole world was plunged into the worst depression in its history. The boom was marked by the usual features, especially by the emergence of new industries, products, and methods ; but it was quickened by the need for repairing and rebuilding the devastated war zones of Europe, and by the job of making up for five or six

years of lost time in such things as building houses, offices, etc. Industries were becoming more mechanized and farmers were buying tractors and "combine" harvesters. Millions of new cars were bought, roads were made or improved on which they could run, and oil-wells, refineries, and filling stations were multiplied to feed them. While the world got its 35,000,000 cars and trucks, it also obtained its radios, electrical appliances, rayon garments, movie houses, cosmetics, beauty shops, soft drinks, and many other comforts or luxuries which the mass of the population had not enjoyed before 1914. These new demands alone would have made industry prosperous; but on top of them came the abnormal demands for millions of houses in Europe, and the belated erection of skyscrapers, apartments, hotels, and new residential suburban homes in America.

All this intense activity created a vast demand for materials, power, capital, and labour. Producers, whether primary or secondary, expanded their output and capacity. The demand for capital was enormous, and investors, especially in the United States and Britain, poured out money to lend to governments or companies at home and abroad, to help the extension of settlement and industry in such new countries as Australia and Canada, and to finance the restoration of Germany or the youthful development of countries which had been born at the Peace Conference in 1919. There were some dark spots on the map; old industries, such as coal-mining and cotton-weaving, found it hard to win back former markets because of new rivals, high tariffs, or the poverty of old customers; and agriculture had some troubles; but the bright spots

predominated, especially in the United States, and some incautious economists asserted that this country had entered a "new era" of permanent prosperity. Investors therefore poured their money into stocks and bonds, and investment easily turned into speculation. By 1928 New York was in the throes of a stock-market fever, which spread to most other financial centres. Prices of stocks soared, and ingenious financiers organized new companies, especially holding companies, in order to supply the market with more "securities" for sale to the eager buyers.

By 1929 this speculation, largely conducted with borrowed money by armies of amateurs, reached its crazy zenith, and was bound to crash sooner or later. Meanwhile other parts of the boom were by 1928-29 showing signs of having gone too far, or of having played themselves out. The production of many commodities, whether wheat, apartments, cars, or radios, had expanded so much that the market was becoming glutted. The rebuilding of Europe with loan money was almost completed, and borrowers were bound to find it difficult to pay interest on their foreign debts if the creditor (chiefly the United States) would not take their goods in payment, or if the value of these goods fell seriously. These unpleasant possibilities became realities about the same time as the stock market came to grief, and 1929 saw the beginning of a tragedy which grew grimmer year by year till 1932 or early 1933. The bottom fell out of nearly every kind of business. The price of farm produce and many minerals dropped 50 per cent or more. The index number of stock prices in New York plunged from 158 to 17. A quarter of the wage-earners in western

countries lost their jobs. The volume of world trade declined a quarter and its value two-thirds. Bankruptcy overwhelmed town and country alike. Farmers and many other debtors could not pay their interest bills. Hope of recovery almost died.

In every land governments were forced to "do something," and the thirties saw an unparalleled extension of state intervention in economic affairs. Every sick section of the community—and there were few which were healthy—clamoured for aid. Relief was given to the unemployed, the farmer, the banker, the shipowner, and the manufacturer in one way or another. Reforms were effected in banking, transportation, producing, and selling. All sorts of efforts were made to stimulate and hasten recovery, by "monkeying" with the currency, making loans available at low interest rates, increasing tariffs, regulating marketing, spending large sums on public works, giving subsidies to producers, and so on *ad infinitum*. Meanwhile chaos and suffering made people discontented with their rulers or even with the form of government itself. In Canada, the United States, and Great Britain the electors threw out the parties which had been in power in 1929 so vigorously that their successors had virtually no opposition and could do what they thought best promptly. In Germany Hitler's seizure of power in 1933 was accepted because those he evicted had been unable to stem the tide of economic disaster.

In 1932 the worst was over, and the recovery which set in has continued with some minor set-backs till to-day (1938). But the scars made on the world's body by the blows of depression are far from healed. The gold standard has gone, and we have not found a

satisfactory substitute. The high tariff walls built to protect countries from the storm have been only partly reduced, and in a few places. Relief expenditure is large, for unemployment has not sunk to its pre-depression level. National debts have become much larger because of the sums borrowed by governments which could not, or would not, balance their budgets. State regulation of production and trade is deep and wide; and the threat or fear of war, which became stronger during the years of depression and recovery, has turned much of the resources and energy of mankind to the production of armaments.

**External
Trade**

The growth of international trade was one of the most important developments of the last 150 years, and discussion about it has occupied more time than any other subject of political controversy. The growth is briefly told in the following table, which gives the total value of exports and imports for all countries, and therefore counts every article twice—as an export from one country and an import of another :

1820	.	.	.	.	2 billion dollars.
1860	.	.	.	.	7 " "
1900	.	.	.	.	20 " "
1913	.	.	.	.	40 " "
1929	.	.	.	.	67 " "
1934	.	.	.	.	23 " "
1936	.	.	.	.	25 " "

During the Hundred Years' Peace between Waterloo and the Great War the *value* of international trade increased twentyfold, and we are safe in assuming

that its *volume* increased quite as much. After the war its value rose about 66 per cent, but most of this was due to higher prices. During the depression the volume fell a quarter, but the value declined two-thirds because prices had fallen so heavily. With recovery in trade and rising prices, the volume of international trade had regained most of the lost ground by 1937, in spite of all restrictions ; but its value climbed more slowly.

Europe was responsible for most of the great growth of international trade. The goods which passed between European countries, or between them and other continents, comprised two-thirds of the total foreign trade in 1913, and over half that of 1929. Great Britain led the field, and in 1913 still did about a sixth of the world's trade ; but Germany advanced rapidly after 1870, and in 1913 handled one-eighth, while the United States did about a tenth in that year. During and after the war the United States and Japan gained a greater share of the trade, and in 1929 Great Britain and the United States each did about a seventh, Germany a tenth, and France about 6 per cent. Japan's percentage had risen from 1·5 to 3, Canada's from 2·5 to 3·5. Yet the great lines of trade stayed where the 19th century had drawn them, running to or from Great Britain, Germany, France, Holland, Belgium, and the United States.

When we analyse the goods that crossed frontiers, we find that about a quarter of them in 1929 were foodstuffs, a third were raw materials for industry, and the remainder were manufactured goods. While no country exported more than a third of the goods it produced, some industries or areas in each land

depended largely on the foreigner for the sale of their wares. A fifth of the world's wheat crop was exported; the United States shipped abroad over half her cotton and a third of her tobacco; Denmark and New Zealand exported nearly all their butter, Australia four-fifths of her wool, and Malaya all its rubber. Similarly, some mining regions were working almost entirely for sale abroad—Canadian nickel, South African gold, or Malayan tin. Finally, some manufacturers depended greatly on foreign buyers, *e.g.* Lancashire cotton weavers, Swiss watchmakers, or Canadian pulp mills; but international trade in manufactured goods can easily be made unpopular, and in a moment we shall see how it has been the subject of tariff attacks during the last seventy years.

The international trade of every country is far smaller than its internal trade. Further, most of the international trade is between countries which are near neighbours rather than between continents. Even Germany in 1913 sold three-fourths of her exports to her neighbours. Great Britain is the exception; she has her empire and merchant fleet; yet before the war as well as after she sold a third of her exports to the Continent, chiefly to countries across the North Sea. A good third went to the overseas Empire, and a slender third to foreign countries outside Europe. Australia and New Zealand had to send their goods a long way because they had no near neighbours. Canada benefits from both near and distant markets; in 1922 she sold 40 per cent of her exports to Great Britain and 40 per cent to the United States, but since then the next-door market has become increasingly more important than the transatlantic one.

The growth of international trade during the 19th century was helped by the improvements in transportation and the reduction in freight rates ; by the flow of people and capital to the New World, and the consequent increase of production there ; and by a more liberal policy on the part of governments toward external trade. Let us look at each of these factors.

Of the first—improved transportation and lower freights—enough was said in Chapter V., but two instances may be added. Within fifteen years of the first successful carriage of frozen meat from Australia it was possible to kill, dress, freeze, and ship New Zealand lamb to London for four cents a pound. In the 1870's it cost \$2.75 to carry a quarter of wheat from Chicago to Liverpool ; by 1902 it cost only 60 cents.

Of the second factor—the outflow of people and capital—much could be said. The emigrants needed all kinds of manufactured goods in their new home, and must import them until local industries developed. Further, while Europe was sending 50,000,000 people overseas she was also sending vast sums of capital abroad to be used by them or by the people already there in the development of their resources. We cannot say exactly how much capital emigrated, for much of it was lost when companies failed or governments defaulted ; but since at least \$30,000,000,000 was invested in securities in 1914, the total export of capital must have been much higher. This capital went out in the form of goods—rails, machines, engines, etc.—and thus added to Europe's exports of commodities. The interest or profit on it was received in goods—wheat, meat, lumber, metals, etc.—thus adding

to Europe's imports. Hence every period of active external investment was a period of flourishing external trade; but when capital grew timid and stayed at home the ships were idle or empty and industry was slack.

The third factor influencing foreign trade was the attitude of governments toward it. During the 18th century the complicated mercantilist control was increasingly attacked, on the ground that it had failed, that it was bad, or that it was unnecessary. In France men pleaded for *laissez-faire*, for a policy of let alone, for liberation from all restrictions on industry, agriculture, and trade. They argued that state-made laws were unnecessary, since there were *natural* laws which would guide and control men's actions for the general good, just as there were natural laws which controlled the movement of the stars and prevented them from bumping into each other. In Scotland, Adam Smith, in his *Wealth of Nations* (1776), said much the same thing, but talked rather of an "invisible hand" which would guide even selfish men to do things that turned out to be good for society at large. Smith raked the Mercantile System fore-and-aft, and suggested that the wealth of nations would best be increased if each individual or area was left free to produce the goods for which he or it was best fitted, and to exchange them freely for the specialized products of other people or regions.

Such ideas became increasingly popular because they coincided with the views of a growing number of British merchants and manufacturers during the late 18th and early 19th centuries. These men were becoming so efficient with their new equipment and

methods that they had little to fear from foreign rivals, especially if the tariff was reduced to allow them and their workpeople to get foodstuffs or raw materials at a lower price. Further, if Britain set the fashion by reducing its tariff, other countries might follow her lead, and British wares would be able to get more easily into foreign markets.

Unfortunately for the free trader, the Napoleonic War forced countries to raise their tariffs in order to get more revenue or to protect their farmers and manufacturers when peace came. By 1815 there were 1,500 items on the British customs list; the Corn Laws were amended in that year to keep foreign wheat out of the country until the price of British wheat reached the famine figure of \$2.50 a bushel; and this piece of "farm relief" was supplemented by putting a duty on imported wool. After thinking in terms of war for twenty-three years the country took a little time to begin thinking in terms of peace, but when it did so the merchants and manufacturers turned their big guns on the protective system with slow but deadly effect. Between 1825 and 1860 that whole system collapsed piece by piece. The Navigation Laws were modified after 1825 and swept away by 1854. Prohibitions on imports were wiped out, and customs duties were reduced in number and size; by 1860 there were only 48 items on the tariff list, and in 1874 only 17. The Corn Laws had gone in 1846.

The attitude toward colonies changed as free trade became the accepted faith. Some observers prophesied that the colonies would break away when the time came, as the United States had done; like ripe apples they would fall from the tree. Others urged that goods

should be bought wherever they could be obtained cheapest, whether the seller was inside the Empire or outside ; let there be free competition and no subsidies or preferences to colonial producers. If Canadians could not supply lumber as good in quality and as low in price as did their Baltic rivals, let them look round for some other occupation which they could do better. Britain therefore abolished preference on colonial produce entering the British market, and at the same time gave the colonies power to make their own tariffs, to impose duties on British imports if they wished, and to be master in their own house.

In moving toward free trade Britain had been inspired by a mixture of confidence, fear, and hope : confidence in her capacity to withstand foreign competition at home and to capture more of the foreign market ; fear that other countries would raise their walls higher unless she lowered hers ; and hope that if Britain led the way other countries would follow her example. To some extent this hope proved to be justified, for there was a widespread trend toward freer trade until the seventies. In Germany seventeen governments formed the Zollverein (Customs Union) in 1833, which set up free trade between the member states. In later years other states joined, and tariffs were lowered on imports from the outside world. In France Napoleon III. negotiated trade treaties with Britain, Prussia, and other powers, by which tariffs were substantially reduced. In these and other treaties each signatory gave the other "most favoured nation treatment." This meant that if A., having signed a treaty fixing a rate on B.'s woollens, then signed another treaty giving a lower duty on C.'s

woollens, B. would immediately get the advantage of the new rate. If such treaties were negotiated between A. and most of the rest of the alphabet, a long stride was taken toward free trade.

The Return of Protection. During the seventies the tide turned, and by 1890 many countries had adopted higher protective policies. The reasons were many and varied. In Germany and France manufacturers clamoured for shelter for their young industries against their older and more mature British rivals; in the United States, Canada, and Australia the plea was for protection of infant industries, or of industries not yet born. This argument was often supplemented in the New World by the contention that higher standards of living prevailed, but that these would be in peril if native products had to face the competition of imported wares made by the low-paid workers of Europe or by Orientals who existed on a few handfuls of rice. Western European farmers joined in the cry for help when the cheap farm produce of Russia and America descended on their market in a great flood during the seventies and eighties. Meanwhile governments needed more revenue in order to meet the cost of growing armaments, or of such social services as education, public health, insurance schemes, and pensions. Finally, there was the plea for industries which would make the nation self-sufficing and able to produce the weapons it needed in time of war. Given permanent peace, free trade was unquestionably the best policy; but if war broke out, a nation which had remained agricultural would have little hope of success in fighting a nation which made guns and built warships.

All these arguments were given force by the decline in prices between 1873 and 1896, and by the severe or prolonged depressions which marked that period. In such times cries for protection become loud and are hard to resist, just as on the other hand the plea for free trade has a better chance of being heard when prices are rising as they were between 1849 and 1873. Hence after 1878, when some of the trade treaties expired, the raising of tariff rates began. As supplementary parts of the new policy, bounties were given on goods produced or exported, subsidies were paid to help native shipping companies, the coastal trade was kept closed to foreign vessels, railroad rates were lowered on goods going to the ports, technical schools and research laboratories were set up. Thus the state took an active hand in sheltering and encouraging the enterprise of its citizens.

Of the great commercial powers only Britain stuck to free trade. Foreign countries raised their tariffs against her. Canada and Australia did likewise, though after 1897 they levied a lower rate on British goods than on foreign ones. Yet in face of all this, Britain kept her feet on the free trade path. She must have cheap food and raw materials if she was to remain a great exporter of manufactured goods; the raising of a tariff wall against imports would not help her exports; manufacturers and industrial wage-earners were more powerful politically than were the farmers and landlords; and people still talked of the "hungry forties" and the terrible Corn Laws. When times were bad in England they were quite as bad in protected countries; when times were good England had a full share of them. But since she would not impose tariffs she

could not grant preference to the Dominions in return for that which they had granted her.

On the eve of the war the protectionist wave seemed to have spent itself. Prices rose greatly between 1896 and 1914, periods of depression became more brief and less severe, infant industries had grown up, and some of them looked like greedy monsters. The cost of living went up more than did money wages, and there was growing discontent among wage-earners in consequence. Hence, in Germany and the United States especially, the call for lower tariffs was loud and growing in strength. But the war quieted the clamour, threw international trade into confusion, made the need for self-sufficiency acute, brought many new factories and industries into being in all lands, made consumers vow they would never again buy enemy products, and stimulated the spirit of nationalism.

During the post-war decade the exporter encountered great difficulty in finding foreign markets for his wares. Some nations were too poor to buy, or had virtually closed their doors by revolution (*e.g.* Russia) or by prohibitive tariffs, and were trying to make at home what they had once imported. American and Japanese exporters had stolen a march on their British and German rivals during the war. Currencies were in confusion, and some exporters had an advantage over others because their money had depreciated and their goods were therefore very cheap. By 1927, however, some problems were being straightened out, tempers were cooling, and the opportunity seemed to be approaching for the removal of some obstacles to foreign trade. Instead, there came the crash of 1929, which sent the value of international trade down two-thirds,

and raised the regulation and restriction of it to a new peak.

(1) Tariffs were raised, sometimes to a prohibitive rate. Great Britain in 1931-32 deserted free trade, imposed duties on most imports from foreign countries, but allowed imperial products to enter duty-free or at a lower rate than was charged on foreign goods. At the Ottawa Conference in 1932 trade agreements were signed between the self-governing parts of the Empire.

(2) Import quotas were fixed, limiting the amount of goods to be admitted, and often the original quota was reduced later on.

(3) Governments took charge of the available supply of foreign exchange and controlled its use. If a Dane could buy pounds, but not dollars, he must purchase British goods, but not American; and if he could get no foreign exchange he could import nothing. If a government needed foreign money to pay interest abroad, there was so much less left for the use of importers. Sometimes control pushed trade back to barter: one government might agree to exchange x tons of coal or fertilizer for y tons of cotton or coffee, or even for a steamship; it might say, "We will let you sell as much to us as you buy from us"; or it might say, "If you will buy from us, we will buy your goods at a higher price than you would get for them in the world market." Rulers who were eagerly re-arming encouraged the import of the essential raw materials they could not obtain at home, but checked that of other goods; they tried to develop industries which would produce substitutes for some imports, *e.g.* rubber, wool, or gasoline; and they sought to conquer or at least to gain economic control of ad-

joining lands which produced oil, wheat, or minerals. Thus trade, like currency, credit, and production, was "managed." Only the western fringe of Europe, the British Empire, and the Americas allowed traders comparative (but not complete) freedom to buy or sell where they could ; and that freedom was in 1938 in danger of being restricted as the need for armaments became more urgent.

Supplementary Reading.—Heaton, chaps. 23-30 ; Day, chaps. 33-40 ; Johnson, E. A. J., *Some Origins of the Modern Economic World*, chaps. 6-7 ; and the chapters on such topics as division of labour, money, banking, business cycles, monopoly, and foreign trade in any textbook on economics that may be available. The *Encyclopaedia of the Social Sciences* has articles on all the subjects covered in this chapter, and lists of books will be found at the end of each of them.

CHAPTER VII

THE COMMERCIAL DEVELOPMENT OF THE UNITED STATES

**The
Economies of
New Countries** IN 1790 the North American Continent housed only about 4,000,000 people, apart from the Indians; to-day it holds nearly 140,000,000. Its real growth has been compressed into the

last 150 years, a period when the Old World was developing the methods, equipment, and organization described in the last two chapters. These new ways of doing things influenced North America, and many parts of her territory could jump from a state of nature into a high degree of development inside a decade or a generation. They presented her with many of the same opportunities and problems as Europe knew, and the *general* pattern of economic society was similar on both sides of the Atlantic.

But the New World, whether north or south of the equator, was not merely a copy of the old, and its development had many novel features. In the first place, it was a *new* world—new to the white man—and needed population and capital. Much of its story was concerned with the immigration of men and money, the flow of people to the frontiers of settlement, the clearing of forest, and the breaking of prairie. The

limits of this expansion were reached in the United States about 1900, and have now been almost reached in Canada, Australia, and South America.

In the second place, it was an *unknown* world, and its development was aided by a series of discoveries of fertile areas or rich mineral deposits. California, South Africa, Australia, and Northern Ontario all received a great impetus from the discovery of gold, while rural settlement spread farther afield when explorers came back and reported the existence of hitherto unknown good lands.

In the third place, new countries were *unbalanced*. Land was plentiful, but capital and labour, especially skilled labour, were scarce. When things are abundant we are extravagant in our use of them, and even destroy them wilfully; when things are scarce we make them go as far as possible. To the early settler on the Atlantic coast or the St. Lawrence, wood was a drug on the market; he could not sell much of it, so he destroyed the forest to make room for his house and crops. Land too was plentiful; so he squandered its fertility by continuous cropping, and when a patch was exhausted he moved on to another one. He was a "miner," taking riches out of the soil almost as much as if he had been extracting coal or gold. In every part of America—the cotton fields, the farm lands, and the forest—the golden rule was "Exhaust and move on!" Only when there was no place left to which he could move did the exploiter of natural wealth begin to think about conserving what was left. With prodigal use of land went careful use of labour. The labour must be made as effective as possible by devising machinery and appliances which would mine,

make, lift, or haul in large quantities under the care of a small—and possibly not very skilled—labour force.

In the fourth place, the New World gradually ceased to be new. At first it produced food and raw materials, which it shipped away to feed the factories or mouths of the Old World. The older countries encouraged it in this work, and sent out capital or emigrants. But this very encouragement helped it to grow up, to develop means of transportation, to build up a large population that provided a good home market, and to begin saving in order to provide its own capital. Then it began to ask why it should remain lumberjack, fisherman, farmer, or shepherd for other nations. It began to resent the label "Made in England" or "Made in Germany" on the articles it bought. Its emerging national pride was offended by the thought that it let others do tasks which it could and should do for itself. All new countries sooner or later turned their efforts toward the building up of their own manufactures, financial institutions, and shipping services, and framed commercial policies which encouraged such developments.

Finally, some parts of the New World—the United States, Canada, and Australia—were large in area. This made their transportation problem much more difficult than in smaller lands. It gave them a great variety of climatic zones and natural resources, a variety so great in the case of the United States that the country could produce most of the commodities it needed. It also gave the United States a market so large, once the land was fairly well settled, that production for home needs alone could be carried on

with all the economies of large-scale organization and equipment.

The United States to 1815 The United States in 1783 was a rural nation, with a few small manufactures, a healthy shipbuilding industry, and an energetic group of traders. In the north the population lived on clearings made in the forests on land which was far from rich; or they lumbered, fished, built ships, and traded. In the central and southern states—from New Jersey southward—soil and climate were better; corn, wheat, dairy produce, tobacco, and rice were the staple products, and some of them were sold to other states, to the sugar planters in the West Indies, or to Europe. Cotton was only just beginning to be cultivated. In the south the slave plantation predominated; in the north the small farms prevailed. In all areas farming methods and equipment were primitive; the wooden plough was in use, threshing was done with the flail, and land was given no fertilizer, but was cropped till it was worn out.

By 1783 the older settlements had become fairly mature; but out back the frontiersman was almost as self-sufficing as his medieval ancestor, and his days might be spent just as largely in usuculture and usufacture. Transportation was easy so long as settlement clung to the rivers and the coast, but rapidly became difficult when people moved westward, since there were very few breaks in the ranges which separated the coastal lands from the interior of the Continent. The pedlar was the first link between the frontier and the outside world, but a general store would usually appear as soon as there were sufficient customers in a district.

Industrially the country was about where England had been in 1400. There was a great mass of domestic production of things needed on the farm or in the home ; there were some wandering workers, and some retail handicraftsmen who had shops in towns ; but a few products, such as hats, shoes, nails, flour, and cloth were being made either in central workshops or under the putting-out system. During the quarrel with England the production of cloth and munitions expanded greatly.

In colonial days commerce between the colonies or between them and the outside world had grown substantially. The south had tobacco, indigo, and rice to export ; the middle colonies had a surplus of farm foodstuffs ; and while the northern colonies had little of their own produce to offer in trade except fish, furs, barrel staves, and rum, they became the shipbuilders, shippers, and middlemen for most of the traffic on the western Atlantic, as well as for much of that across the ocean. In 1748, 500 ships left Boston for distant ports—Newfoundland, the West Indies, Africa, Europe, and the southern mainland colonies. In 1770 one-third of Britain's shipping tonnage had been built in North America, and during the next four years 2,000 vessels were launched from colonial shipyards.

Cotton. The economic outlook in 1783 was very dismal, and many onlookers expected that the new nation would soon be economically and politically shipwrecked. The states were not yet united, and were quick to lose their temper with each other. The debt incurred during the Revolution was heavy, the currency was in chaos, and some overseas markets were closed. But the

clouds quickly lifted : new markets were sought as far afield as China, and the old ones, especially in the West Indies, were reopened. In 1787 a federal constitution was framed which established free trade between all the states, started a national currency and postal system, and gave the nation a single voice in dealing with other governments. Then in 1793 came two great opportunities for the expansion of production and trade.

The first was the invention of a machine to remove the seeds embedded in the cotton when it was picked from the plant. Formerly these seeds had been picked out by hand—a slow process, for few slaves could clean more than five or six pounds a day. In 1793 Eli Whitney invented the cotton gin (or engine), which cleaned 50 to 60 lb. a day when turned by hand and many times as much when driven by power. This invention removed one of the chief obstacles to the expansion of cotton growing, and gave almost unlimited opportunities for the spread of cultivation in the south. In 1790 only about 3,000 bales had been grown ; by 1800 the crop was 73,000 bales, in 1830 it reached 730,000, and in 1860 the yield was nearly 5,000,000 bales, or well over a million tons.

The second opportunity came with the outbreak of the European wars of 1793–1815. Then, as on later occasions, North America benefited by the quarrels and wars of Europe. When that Continent drew its workers into the armies or commandeered merchant ships for naval service, it welcomed American ships and cargoes of food. When the war was being most fiercely waged, the American trade became most active ; but when hostilities lulled or a temporary

peace broke out, the trade became quieter. When England and France tried to fight each other with trade weapons (after 1805) the blows they aimed at each other often hit the neutral, and friction between London and Washington over war restrictions on sea trade finally led, in part, to the war of 1812.

The European turmoil had three chief effects on the United States. Shipbuilding and shipping expanded greatly; the call for foodstuffs encouraged settlement farther west; and the dispute with England cut off the normal supply of manufactured articles and led America to establish more factories and workshops. Thus the country was much stronger economically in 1815 than it had been in 1783, and the lines of future development were apparent.

Four important developments occupied the years from 1815 to 1861. They were the westward movement, improvements in the means of transportation, the expansion of grain, cattle, and cotton production, and the rise of manufacturing industries. All were helped by the flow of people and capital from Europe. British money played a large part in building the railroads and the banking system, and in financing foreign trade, and only gradually were Americans able to save enough to finance large enterprises. The influx of labour rose from a tiny annual trickle of less than 10,000 immigrants before 1825 to a wide stream of 400,000 in the fifties. During this period the United Kingdom supplied over half the new-comers, and Germany provided about 30 per cent of them. Some were skilled artisans, some were practised farmers,

and many possessed no special aptitude ; but all three kinds were welcome.

The Westward Movement. The westward movement of settlers had begun before 1783. Fur-traders were out in the old North West, competing with rivals from Montreal in the lands south and west of the Great Lakes. The trapper or trader was gradually followed by the farmer. In 1770 it was estimated that there were only thirty families settled beyond the Allegheny Mountains, but by 1790 there were probably a quarter of a million people at least. The movement was described as having "exceeded the bounds of credibility," yet it had only just begun. The migrants were a motley collection. Some were weary of the turmoil and bitterness of the revolutionary years ; some were disbanded soldiers ; some were New Englanders in search of more fertile areas than those on which they had lived ; and some were born frontiersmen who simply had to be out ahead of the rest. But all heard the command that for a century was to ring in the ears of the country—"Go west !"

There were three main routes by which they could go inland. The first was from New York up the Hudson, and then westward up the Mohawk Valley to western New York State, Buffalo, and points west. The second was from Philadelphia or Baltimore up valleys and over the hilltops, then down to the Ohio at Pittsburgh. Here the migrants bought or made a flat-bottomed boat, roofed over and known as an ark. On it they loaded their goods and live stock, and floated downstream till they reached their destination or arrived at some landing-place from which the journey had to

be resumed on foot. The third route ran from Richmond over the southern Appalachians, then dropped down into Kentucky or Tennessee, and so reached the middle or lower Mississippi.

This westward flow continued in varying volume during most of the 19th century. The completion of roads and of the Erie Canal (1825) hastened the spread of population up to the shores of the Lakes. The railroads did not become helpful to migrants until the forties and fifties. By 1860 the "centre of population" had moved as far west as a point on the Ohio almost exactly south of Detroit, and nearly 500 miles from the Atlantic coast; there were as many people west of that point as east, and as many lived north of it as dwelt south. The western edge of continuous settlement ran from Minnesota almost in a straight line to Texas; there were outposts in Utah and other mountain regions, some people had gone all the way to Oregon, and in 1848 California burst into life with the discovery of gold.

Transportation. In the new world transportation facilities served a double purpose: they smoothed the path between existing settlements and made a way from settled to unoccupied areas. As in England, the first steps were the making of roads and the improvement of waterways. Tracks were made up the valleys and through the forests, and the tracks broadened into highways. Turnpike companies were formed to construct some of the early roads, but their tolls were so heavy that gradually road-making became a state or even a federal duty. One federal road crossed the mountains and reached the Ohio in 1818; by 1838 it

went as far as Illinois, but stopped there because the railroad was coming.

Like Canada, the United States had many waterways, but they were far from perfect natural means of transport. Those which ran into the Atlantic were broken by rapids and waterfalls in their upper reaches, and the Mississippi flowed so rapidly that while downstream traffic was quick and cheap, upstream travelling was almost impossible, except for small boats fitted with sails or propelled by poles. Consequently nearly all Mississippi traffic went one way. Primary products were loaded on to rafts or flat-bottomed boats and sent south ; but in the words of an early Kentucky settler (1790), " we find it impracticable to remount the rivers without infinite labour." Goods and boat were therefore sold together, and the boatmen made their way back home by land through a virtual wilderness. Those who disliked this kind of return journey took ship at New Orleans for the West Indies, then sailed for a mainland port and crossed the mountains to their home, after an absence of four to six months.

The steamboat was the solution of the Mississippi problem, and when Fulton in 1807 took his little steamer from New York to Albany, a distance of 150 miles in 32 hours, the value of steam navigation on rivers was revealed. Fulton opened a shipyard at Pittsburgh in 1811, a regular steamboat service was at work between that city and New Orleans by 1815, and soon a journey which had taken three months by sail or pole was being completed in a week. By 1850 hundreds of steam vessels were plying on the large rivers or Great Lakes, and the inland steam tonnage equalled the total steam tonnage of Great Britain in the fifties.

Canals Meanwhile the natural waterways were being linked up, and the rapids or waterfalls were being circumvented by cutting canals. The most ambitious and valuable project was the Erie Canal, completed in 1825, from Buffalo to the Hudson at Albany. It gave cheap and easy transport between New York City and the growing population on *both* sides of the



The Erie Canal, about 1840.

(Note width of lock, and the timber rafts in the distance.)

Lakes. Upper New York State, Ohio, and Michigan benefited greatly, and so did Ontario. Immigrants and manufactures went up the canal, farm produce and lumber went down it, and the freight rates between Buffalo and Albany dropped 85 per cent. The canal helped New York City to triumph over its rival ports, Boston and Philadelphia.

The success of the Erie stimulated a canal boom

during the next decade. Canals were cut to connect Lakes Champlain and Ontario with the Erie Canal, to link Lake Erie with the Ohio, and Lake Michigan with the Mississippi. In 1855 a canal at the Sault Ste. Marie gave water connection between Lakes Huron and Superior. These canals proved extremely useful, but their limitations were serious. They could not reach all settled parts of the country, they could not link the Mississippi with the eastern seaboard, they did not permit fast traffic for fear of washing away the banks, and they were frozen in winter. Better links were needed if traffic was to move more quickly in greater volume all the year round between the east and the west.

Railroads. The railroads provided these links. The first line was the Baltimore and Ohio, chartered in 1827, and operating 13 miles of track by 1830. As in England, most of the early lines were short, were little more than spurs going out from rival ports, or were portages to connect rivers; in 1850 no railroad went far west. But during the next ten years the country went railroad-mad, and the length of track grew from 9,000 to 30,000 miles in 1860. Chicago, St. Louis, and other inland centres were connected with the Atlantic seaboard; pioneer lines opened new areas for settlement in Iowa, Minnesota, Wisconsin, and Missouri, and the produce of the heart of the country found its outlet eastward as well as southward. In 1850 the Federal Government began to give land to the railroads, and the money they received by selling it helped to pay the costs of construction and operation. In the boom years, 1856-57, 20,000,000 acres were given away.

Agriculture. By 1860 the eastern third of the country had an excellent network of railroads, roads, and waterways. The frontier could be pushed still farther westward, and those who settled on it could hope to get their grain and live stock to market almost from the start of their operations on new land. The pioneer need not therefore be a subsistence farmer. Agricultural methods improved somewhat, fertilizers were used in places to replenish the soil, live stock were improved, and during the thirties and forties reaping machines invented by Hussey and McCormick came into use, thereby enabling the farmer to cut 15 acres a day with a small amount of labour. Corn was the largest crop; it was consumed by live stock which supplied the domestic demand for meat and found some consumers abroad. Wheat was sold chiefly to domestic consumers; some of it was exported as grain or flour, but freight rates on land and sea were still too heavy to permit great shipments overseas.

Down south, cotton was king. Sugar, rice, and tobacco were still important crops, but most of the two million negroes in the south in 1850 were on cotton plantations. As the demand for cotton grew, and as old land became exhausted, the planter moved to new areas, and so the cotton kingdom marched westward. In 1820 the chief cotton states were South Carolina and Georgia, both on the east coast. In 1860 the list read: Mississippi, Alabama, Louisiana, Georgia, and Texas; the Gulf and river states were producing three-fourths of the whole crop. The planter wanted to extend cotton, and slavery still farther, but the north would not agree, and the friction on this issue led, in part, to the Civil War.

Since the Civil War The period since the Civil War saw some of the earlier developments continue until they could go on no longer and came to an end. Immigration of people and capital, the westward movement, the building of railroads, and the export of primary products all continued after 1865, some of them even more vigorously than they had done before 1861. But eventually they petered out, stopped, or at least diminished in importance. Meanwhile new or formerly insignificant developments grew large. Manufacturing and mining expanded so much that they eventually employed more workers than were engaged in agriculture. In consequence of this industrialization, exports of factory products became more important than did those of farm produce; the population became more urban than rural; great industrial and financial corporations gained control of a large part of the country's enterprise; and as a simple rural society became overshadowed by great industries and cities, the whole character of life and government became very complex.

The Westward Movement. By 1861 over a third of the country had been more or less settled; by 1914 the rest had been occupied. The rapidity with which the westward flow was brought to completion was due to three factors. The first was the extension of the railroads. In 1860 there were 30,000 miles of track; in 1880, 93,000; in 1900, 200,000; and in 1910, 250,000 miles. In 1869 the first transcontinental line was completed, and six others were laid later. Local lines were run out into settled or unsettled regions, and more routes

from the heart of the country to the Atlantic coast were provided. Few habitable parts were far from a railroad by 1900.

The second factor was the comparative ease with which western land could be obtained. In 1862 Congress passed the Homestead Act, by which the head of any family could take up a quarter-section (160 acres) of public land, settle thereon, and secure title after five years' residence on payment of a small fee. By various other laws he could "pre-empt" another quarter-section for \$1.25 an acre, and get still more land quite cheaply. But this free or very cheap land was usually a long way from a railroad. Settlers who wished to be near the tracks must pay a higher price for government land, or must buy some of the 150,000,000 acres granted to the railroads by the federal and state governments. The railroads were eager to sell, in order to get money in hand and settlers who would provide their lines with freight. Hence they sold at reasonable prices, and did much to induce Americans and Europeans to come, buy, and settle. The western migrant could therefore get a farm free or quite cheaply.

The third factor was the discovery of rich mineral deposits in the mountain states and the suitability of vast areas for cattle ranching. There was a mining frontier and a cattle frontier as well as a farming frontier. Gold, silver, copper, and lead were found in "them thar hills," and drew miners to Arizona, Nevada, Utah, Colorado, and Montana; and the western railroads made it easy to transport the cattle and sheep from the ranges and ranches to eastern markets.

Thanks to these factors, the west was quickly filled up. By 1910 the "centre of population" was at Bloomington, Indiana, only about 70 miles east of the longitude of Chicago. West of that centre lived 45,000,000 people on millions of farms, in thousands of small towns, and in about thirty middle-sized or great cities which served this vast but young rural empire. The pace had been fast, and many had fallen by the wayside; there had been much suffering, failure, and fraud in the occupation of the land, and many areas proved unfit for settlement. But the net result was a great addition to the country's productive capacity.

The settler's first interest was usually wheat. A new steel plough enabled him to "break" the heavy black prairie soil. New kinds of seed became available, which would grow and mature quickly in the short summer of the northern states, *e.g.* Minnesota, or thrive in areas of low rainfall, *e.g.* Kansas. New milling machinery ground the hardest grains into better flour. Finally, wheat was easily stored and graded, and could be transported cheaply by railroad or lake steamer to the eastern states to feed the growing industrial areas or to be exported to Europe. In the seventies and eighties the export of wheat and flour from the frontier rose rapidly, to the dismay of Western European farmers; but after 1885 exports stood still, and after 1900 they declined somewhat. The American market was consuming more of the crop, and many farmers were turning to corn-growing, hog-raising, and dairy farming, largely or solely to supply the domestic market. Hence by 1914 regions which once had been wheat fields were devoted almost solely to corn, hogs,

and dairy cattle, and wheat-growing was being left to farmers who lived on the drier lands farther west. During the war the Allies needed vast quantities of farm produce, prices were high, and the output of all kinds of food expanded greatly. But as Europe recovered after 1920, the demand for American wheat, flour, and animal products gradually declined. Farmers were slow in adjusting themselves to the changing conditions, and had not quite done so when depression in 1929 sent prices down and reduced foreign purchases still further.

The South. Meanwhile the cotton states painfully worked out a new social system. The negroes now had freedom—but little else. Their former owners tried to hire them for wages to work the plantations, but the effort failed, for once a man got money in his pocket he would work no more until he had spent it. Landowners therefore abandoned large-scale cultivation and cut their estates up into small farms. Some of these were sold to whites or negroes; some were leased for a fixed money rent; but some were let out on a “share cropping” plan. In the last case, the “cropper” provided only the labour; the landlord supplied the seed, fertilizer, mules, tools, etc. Then the crop was shared between landlord and tenant on some pre-arranged ratio—fifty-fifty, or two to one.

Some croppers were so successful that they saved enough money to become cash tenants or even small landowners; but most of them did not. The white tenants and owners fared better, and pulled the south out of the worst of its troubles; but their lack of capital kept them constantly in debt to the merchant

or storekeeper. Production rose from nearly 5,000,000 bales in 1860 to 9,000,000 in 1900 and 16,000,000 in 1912. Yet the grower remained indebted and poor until rising prices after 1900 gave him more money for his crop and encouraged him to expand cultivation. When those better times came, small banks were set up to supply him with better credit facilities. The boll weevil pest spread from Mexico into Texas before 1900, ravaged large areas, and turned the attention of many farmers away from cotton to live stock, dairy produce, fruit, and vegetables, in order to feed the cities of the north or the new textile and iron-making towns which had grown up in the south. Southern agriculture therefore became more diversified, and the yield of cotton declined a quarter between 1912 and 1922. During the twenties, however, this loss was regained, and the "bumper" crop of 1928 was 19,000,000 bales. When depression came the price fell heavily, much of the crop could not be sold, and after 1933 the government tried to persuade or force farmers to reduce their acreage. For a time such efforts were fairly successful, but when prices recovered the yield rose rapidly again, and in 1938 another bumper crop was picked. Tractors and machines have come into the south, croppers are being displaced as their land is taken over to be worked as part of a large plantation, and the south is once more a "problem."

Manufacturing industries had made

The Growth of steady progress between 1815 and 1860.
Manufactures The production of cloth, iron, machines, implements, and such ingenious things as sewing machines and cheap clocks or watches had

grown in volume, while many industries were engaged in processing farm products, *e.g.* flour-milling, or cutting lumber into planks, building fixtures, etc. But after the Civil War manufactures grew rapidly both in number and output. Between 1859 and 1909 the number of industrial wage-earners rose 400 per cent, the capital of manufacturing firms 1,700 per cent, and the value of products 1,000 per cent. By 1914 the United States had become the largest industrial nation in the world ; but since the nation covered 3,000,000 square miles and occupied half a continent, comparison with other industrial nations of far smaller size does not mean all that it suggests.

The speedy growth and great size were the result of many factors. (1) The United States was a large market. Its population grew from 31,000,000 in 1860 to 76,000,000 in 1900, and to 123,000,000 in 1930. A high tariff imposed during the Civil War was raised occasionally in later years to give the manufacturer and farmer substantial protection against foreign rivals. But inside that tariff wall there was complete free trade, and as the transportation system improved it was easy for goods produced in any one state to seek customers in any of the other forty-seven. Hence the market was great enough to allow manufacturers to produce on a large scale.

(2) The country had nearly all the necessary raw materials and minerals it needed. There was abundant coal, petroleum, natural gas, or falling water to provide power or heat, rich deposits of iron, copper, silver, lead, zinc, etc., and vast forests. These natural resources were secured cheaply or free of charge by those who obtained them from the government. The minerals

were sometimes found in rich veins or seams, and in places they were so near the surface that they could be extracted cheaply. The rich iron ore deposits at the western end of Lake Superior were covered with only a thin layer of earth ; this was scraped off, the ore was blasted loose, loaded by steam shovels into trucks, run down to the lake edge, and conveyed by boat a thousand miles to Pittsburgh. Ironmasters could thus get their ore almost "as cheap as dirt." In Alabama, iron, coal, and limestone were found near together, and when the southern states began to weave cotton fabrics they had the fibre, coal, and "hydro" at their door. Only for a few tropical products such as rubber or palm oil, for a few minerals such as nickel, asbestos, and manganese, and for two fibres, silk and jute, was the country dependent on outside supplies.

(3) Many primary products called for treatment in factories before they reached the consumer. Grain had to be turned into flour or breakfast cereals, butter and cheese began to be made in factories after 1880, the canning of fruit and vegetables became a great industry, lumber had to be cut and made into house fixtures or furniture, and huge slaughter-houses and packing plants were necessary to prepare the country's meat and bacon. These processing industries grew naturally as settlement expanded, and owed little to tariff protection. In 1914 meat packing was the largest industry in terms of the value of its products, flour milling was third, while lumber and timber products came fifth.

(4) The natural growth of the native population and the rising tide of immigration supplied the country with the labour needed for mining and manufacturing expan-

sion. Between 1870 and the end of the century the annual immigration figure fluctuated between 300,000 and 800,000, but after 1900 the stream turned into a flood, and during six of the years between 1900 and 1914 over a million new-comers landed annually on United States soil.

The old stream of immigration from Germany and the United Kingdom dried up after 1880, but in its place came a much larger one from Central and Eastern Europe. Often those who came from these lands were illiterate and very poor; they had little desire to go on the land, and in any case there was very little free land for them to go on; they had little manual skill, and were often fit only for tasks that called for physical strength, willingness to do unpleasant work, or nerves that could stand the strain of rapidly repeating one small process. But they could be quickly taught how to feed the new automatic machines, they did not object to heavy or repulsive tasks, and the wages they received were a fortune when compared with their earnings in the old world.

(5) The organizers of industry had a fairly free hand to plan as they wished. No conservative ideas or powerful labour unions, and few strict factory laws restrained them. They had plenty of inventive ingenuity, and applied it to the development of mechanical production and subdivision of labour on a large scale. Even where machinery could not be used, division of labour was carried almost to the point of "one movement one man." In the meat-packing industry the task of killing and dressing cattle was so highly subdivided that it now takes 44 men, each doing a different thing, to deal with a cow, 31 to handle a pig, and 38

to dismember a sheep. Each of the 200 operations involved in assembling an automobile engine is allotted to a different worker, who may spend all his time tightening a nut or putting in spark plugs. When machinery was employed, the methods of controlling, starting, feeding, and stopping were simplified as much as possible, and a special machine was designed for each task. Conveyor belts, steam shovels, electric cranes, and similar devices were designed so that large quantities of material could be lifted and moved with very little human labour, and many old manual processes, such as glass-blowing, were revolutionized by the introduction of machinery. Thus cheap mass production of standardized articles was made possible.

(6) Some American products found a market abroad because they were cheap. Some were new kinds of articles, *e.g.* electrical appliances, cars, and movie films, and American supplies were almost (or quite) as early in the field as were European goods. Some "Yankee" articles were full of devices to save time and labour, and were suited to the needs of other new countries; farm implements, the tractor, the cheap but serviceable car, the labour-saving tools and machines appealed to Canadians and Australians. Finally, extensive advertising kept the American article before the eyes of the whole world.

Coal and Petroleum. Under the influence of these and other factors, mining and manufacturing went ahead rapidly after 1870. In that year 33,000,000 tons of coal were mined, but in 1920 the output was 660,000,000 tons, or half the world's production. From that peak it declined in later years, since coal was more economic-

ally used or was supplemented (or supplanted) by oil, gasoline, electricity, and natural gas. Petroleum had been known to exist underground even in the 18th century, for a film of oil was found on the surface of some springs, and in the eighteen-thirties one or two wells were bored from which the oil "gushed" some height into the air. But the oil was used only as a medicine or embrocation, and was bottled and sold by chemists or pedlars. In the fifties more important uses were found, and the first well was drilled at Titusville in Pennsylvania in 1859. On the first day the well gave 25 barrels of oil, and the output for the first year was 2,000 barrels.

The growth of production, refining, and marketing of petroleum products is one of the most remarkable stories of modern commerce. The chemist discovered one product after another by treating the crude material; coal oil was the first useful commodity, for it offered a better illuminant than whale oil or candles; lubricating oil, gasoline, and fuel oil came later, while the by-products were numerous and varied. The problem of transportation then had to be solved; at first barrels were used, but the barrel cost more than the contents. Then tank wagons were built for the railroads, and finally pipe lines were laid down, through which the oil could be run very long distances. Tank steamers were designed for sea carriage, storage tanks were built at ports and railroad stations, while trucks distributed supplies to the roadside retailer.

Production grew from 2,000 barrels in 1859 to 200,000,000 in 1910, but the insatiable demands of the rapidly-growing motor industry after that date sent production up to over 1,000,000,000 barrels in 1929.

At first the yield was mostly from Pennsylvania, but after 1865 oil was struck in Kansas, Arkansas, Oklahoma, and Texas, and in 1900 in California. Mad competition eventually caused such overproduction that the country was glutted with oil by 1929, and it has been hard to find a policy which will balance supply and demand.

Water-power played an important part in some districts. Before 1800, as well as later, the falls and rapids on the eastern slopes of the Appalachians were used to turn water-wheels for grinding grain, cutting lumber, and working machines. The textile industry of New England grew up along the "fall line," i.e. the places where the rivers dropped down to the coastal plain. After 1890 the erection of hydro plants began on the fall line, at Niagara, in California, and other places. In recent years many plants have been built to supply power to the southern cotton mills; and in the west rivers have been dammed up to drive generators and supply water for irrigating dry lands.

Iron and Steel. Iron and steel production expanded sevenfold in value between 1870 and 1910. Even in 1890 the steel output had climbed above that of British plants. Between 1910 and 1929 the war and the boom of the twenties trebled the output, but since the demand for steel always declines greatly during a depression the industry suffered severely after 1929. Pittsburgh was for a long time the centre of the industry, using local supplies of ore, coal, and limestone. When ore began to be mined in Minnesota about 1880, Pittsburgh could bring it cheaply down the Lakes; but after 1900 towns on the edge of the Lakes, such as Gary

at the bottom end of Lake Michigan, became important, while the ore deposits of the southern states began to receive serious attention, and the Birmingham (Alabama) area now produces one-eighth of the country's supply of iron or steel.

At every stage the industry sought the advantages of large-scale production and labour-saving devices. The steam shovels which lifted the ore into trucks and the boats which carried it grew ever larger in size, and the cargo was loaded and unloaded quickly by mechanical grabs or other devices. The Bessemer converter, which held only ten to twenty tons of metal, was replaced by the open hearth furnace, which might hold fifty to two hundred tons. Powerful cranes or magnets carried the great lumps of steel from one part of the works to another, and some producers of raw steel began to make it into plates, wire, rails, etc., in order to produce a finished article without having to re-heat the metal. Integration was the order of the day, and steel firms sought to acquire everything they needed, from the ore or coal mine to the rolling mill.

Machinery. Iron and steel, along with the growing supplies of copper, lead, zinc, aluminium, and other metals poured out by the miners and refiners, were used by the machine-makers and the railroads, by the electricians, and then by the automobile industry and the skyscraper builder. After 1860 Britain's supremacy as machine-maker began to be challenged by Germany and the United States, and the latter country produced half the machines made in the world in 1913. Often the American machine was modelled on British or French ideas, but was made automatic, simpler to control,

and larger in output ; the American locomotive, for example, was designed to haul much larger loads than its British forerunner. But many machines were either invented or developed almost entirely on American soil. A Frenchman tried to make a sewing machine, but failed ; an Englishman wrestled with one, with scant success ; but an American overcame the obstacles. Boot-making machines, the typewriter, the cash register, the typesetter, agricultural machines, printing-presses, the whole range of electrical devices, all these were brought to a high pitch of usefulness in American factories.

The Automobile. The automobile is a good illustration of the American ability to import and exploit a new idea. At first steam or electric power seemed to be the most promising methods of propelling the horseless carriage ; but the success of the French in using gasoline converted American manufacturers. By 1907 the industry was taking shape, for in that year Henry Ford produced 10,000 cars, all alike, and in 1910 Europe's output of cars was exceeded. For a time manufacturers were largely assemblers of parts bought from many separate makers, but gradually firms began to make their own parts, and built up enormous plants with many departments. They designed highly-automatic machines and cunning conveyors, and evolved the "assembly line," where a long row of men, standing beside a moving track, assembled the car bit by bit as it passed along the line.

These methods made "volume production" possible. They also enabled costs to be reduced, in spite of improvements in the efficiency and comfort of the product

and of rising prices and wages. One make of car sells to-day at about one-third the price of its primitive ancestor in 1909. Hence, given cheap gasoline and a reliable moderately-priced vehicle, the United States became a vast market for the industry which centred on Detroit. In the post-war years that industry became the largest single manufacture in the country; its output in 1929 was 5,600,000 vehicles, and its metropolis grew to be the fourth city in the land.

If a new industry stood first on the list, an old industry, the making of cloth and clothes, stood second. The high rank of the textile industry was due in large part to the growth of the cotton industry in the south, the increasing use of rayon and silk, the widening demand for knitwear, and the growing habit of buying ready-made clothes. Iron and steel production ranked third in 1929, but other important industries included the processing of animal and plant foodstuffs, machine-making, printing, baking, oil refining, the production of chemicals and paper, the preparation of tobacco, and the electrical industries. New industries were born every decade, and grew rapidly at first, *e.g.* radios, movies, rayon, and cellophane production; and during the depressed thirties many people watched the horizon for signs of a new industry or product which would restore hope and enterprise.

The growth of manufactures was reflected in other changes. In the first place, the population became more urban. In 1880, 71 per cent of it was classified as "rural," but by 1930 the figure had fallen to 44. Nearly a third of the people

**Effects of
Industrializa-
tion**

in 1930 lived in cities of more than 100,000 inhabitants. In the second place, the percentage of persons gainfully employed in manufactures rose from 17 in 1860 to nearly 30 in 1930; that of farm and forest workers was only 22. If we count heads, the United States had become more industrial than agricultural.

Foreign Trade. In the third place, an increasing fraction of the exports consisted of manufactured goods. In 1880 about one-fifth of the exports were manufactured or semi-manufactured wares; in 1910 the fraction was two-fifths, while during the war and the post-war decade it rose to three-fifths. Much of the money lent to the Allies, and later lent or invested abroad, went out in the form of equipment for industry or in products of industry. Thus American exports became more varied in character.

They also became more varied in their destination, and went to an increasing number of markets. Europe, especially Britain, was for a long time almost the only buyer of American produce, and until 1890 that Continent took 80 per cent of the exports. When Canada began to go ahead after 1896 she became an important customer for goods from her neighbour; in 1913 she bought 15 per cent of the United States' exports, and continued to do so in most later years. South America, Australia, and Asia also increased their purchases when America had manufactured goods, gasoline, etc., as well as raw materials to sell. Hence in the years 1926-30 Europe took only 47 per cent, Canada and Mexico combined took 26 per cent, Asia 12, South America 9, while Australasia and Africa combined to take 6 per cent. The United States was becoming

a world trader, as Britain and Germany had done. But the total value of her exports was not more than 5 to 10 per cent of her total output ; in Britain it was probably one-third at its highest point, and in Germany a quarter.

In addition to exporting industrial products, the United States began to export industries. Here and there a manufacturer found that some foreign market was so large, profitable, or promising, or that the tariff wall around it was so high, that he decided to set up a branch factory there. This happened especially in Canada, but branch factories were well known in England and other countries. When Britain became protectionist in 1931, the number of branches in that country increased rapidly, and if you read the electric signs above the works which now line the suburban roads of London you find it hard to believe that you are on the eastern side of the Atlantic.

As the character and destination of exports changed, so did the kind and source of imports. In 1875, 70 per cent of them were manufactured articles, chiefly from Europe. The rest were crude or partly manufactured materials, such as iron and steel, hides, wool, and silk, or food from the Tropics. But the rising tariff shut out some of the old staple manufactured imports, such as woollen cloth and tin plate ; and as American industries grew to maturity they not merely eliminated the need for manufactured imports, but created a demand for imports of raw materials which the country could not produce. Hence, in the years 1926-30, 60 per cent of the imports were raw materials or foodstuffs ; nearly half of the remaining 40 per cent were semi-manufactured materials (*e.g.* leather) which were used by some

industries, while the rest consisted largely of special brands or qualities or luxury goods made overseas.

The fourth effect of industrialization was the conversion of a debtor nation into a creditor country. In the decades of agricultural expansion and railroad building the United States drew heavily on British, French, and even German capital. In addition, she relied on foreign ships to take away her exports and bring in her imports; she lacked adequate insurance companies, and her banks were not skilled in handling overseas payments; so she insured with Lloyd's of London and others, and used British banks to make or collect payments abroad. The United States was thus indebted to many foreigners, and her exports had to do many things. They had to pay for the imports; in addition, they must pay the interest and profits on foreign capital, freight charges and passenger fares, insurance premiums and banking fees, and recompense Europeans for entertaining American tourists. They must therefore be worth far more than the imports, and during the first ten years of the present century they were usually about \$500,000,000 per annum greater.

This excess of exports was not all payment of debts. By 1900 the country was accumulating more than enough capital to supply its own needs. It had some to spare, and began to invest it in Mexico, Canada, Europe, and Cuba. This capital outflow swelled the excess of exports over imports. Then during the war the Allies bought heavily from the United States, but could not spare more goods to pay for their purchases. They therefore sold some of the American securities which they held, and Americans bought

them, thus reducing the amount on which they had to pay interest and profit abroad. In addition, Americans and their government lent about \$10,000,000,000 to the Allies, and after the war lent or invested funds in most parts of the world. Hence, whereas in 1913 foreigners had about \$6,000,000,000 earning income for them in the United States, in 1929 Americans had \$27,000,000,000 lent or invested abroad, and much of it had gone there as part of the enormous American export surpluses of the twenties. How the debtors can pay interest and dividends on such a vast sum to a country which tries to keep imports out by erecting high tariff walls is a problem which no one has yet been able to solve. Hence, when depression came and capital exports stopped, American external trade shrivelled up, and has recovered only a little since; and many of the foreign debtors frankly gave up trying to pay their interest bills.

Shipping. In the midst of all this growth of industry and commerce, one form of enterprise decayed. In the fifties two-thirds of America's overseas trade had been carried by American ships; but by 1870 the fraction had been cut in half. The Civil War dealt a hard blow to the shipping interests, for swift cruisers, such as the *Alabama*, sent out by the southern states to attack northern vessels, captured over 250 of them, and drove the owners of others to sell them to neutrals. What the Civil War began, iron, steel, and steam finished, for by the sixties the iron steamer was challenging successfully the best sailing ships. Britain had the iron and the engineering skill, but as yet the United States was making little iron. To take up the

challenge would involve a great outlay of money in shipyards, machinery, and vessels; but that capital was now being needed for the railroads of the west and the new manufactures. Here were two protected fields, offering greater profits than could be found in a shipping tussle with Britain.

Americans therefore turned from the sea to the land, and resigned the proud position they had held for two centuries on the ocean. By 1900 only 10 per cent of the country's sea-borne trade was carried under the American flag. During the World War ship-building became active again, in order to get goods to Europe and fight the submarine. Sailing ships and steamers, steel or wood, were built, and even concrete hulls were constructed. When the war ended, many of these ships were afloat or under construction, and during the years which followed government subsidies of various kinds helped to keep this greatly expanded merchant marine at work. In the twenties it carried one-third of the country's sea-borne foreign trade, but neither then nor later was ocean shipping a profitable enterprise.

Cheap land and dear hired labour
The Unit of based American rural society on the
Enterprise "family farm," worked by the owner
 and his family. There were in 1930
 about 6,300,000 farms, of which 60 per cent were owned
 by their occupants. There were 10,500,000 people
 gainfully employed on them, of whom only about a
 quarter worked for wages. Alongside the small farm
 must be placed the small store and the small bank.
 As the farming area spread and a new district became
 adequately settled, some one would establish a general

store ; and if he did not start a bank as well, some one else would. It was legally very easy to begin a bank, for very little capital was demanded by law, and very little knowledge of banking was supposed to be essential. At the same time the law and public opinion frowned on the establishment of branch banks. Hence, in 1921, there were 30,000 separate banks, and while some of them in the cities had grown very large, most of them remained small and local in the range of their operations.

Into this rural society of small farms, and "neighbourhood" banks or stores, there came the large units of industry, mining, and railroad transportation. The original railroad lines in the east were short, but they soon amalgamated to form giant systems such as the Pennsylvania or the New York Central. Some new industries began with a multitude of small rival producers, but some of these died, and some were killed off ; others amalgamated ; but a few grew large, because their product was popular, because they were successful in competition, or because they possessed some important patent which no one else could use. Even in old industries the advantages of large-scale production or processing and the rules of the competitive game favoured the development of some firms into giants at the expense of less fortunate rivals. In 1901 the country got its first "billion-dollar corporation," and by 1929 there were several larger than that.

The giant corporation might be the result of natural growth ; but it was usually partly the result of combination. We have examined in Chapter VI. the agreements, kartells, and other devices by which rivals

sought to limit or abolish competition after 1870. The United States had countless agreements, few kartells, but many combinations by which the production and sales or services of several firms were united or unified.

The first device was the *trust*. Stockholders in a number of companies put their shares in the hands of a small body of trustees, who then ran the formerly competing firms as parts of one concern. All the plants were controlled by the trustees, competition was eliminated, inefficient works were shut down, and production was concentrated in the best-equipped plants. At the end of the year the trustees collected the dividend from each firm and shared it out among the stockholders. This plan was first adopted by Rockefeller in the oil-refining industry in 1882, and worked so successfully that it was widely copied by whisky-makers, sugar refiners, and others. As the prices of trust products soared, public opinion became bitterly hostile toward this monster stalking about a land of small units among a people wedded to the idea of free competitive enterprise. Congress and many state legislatures passed laws between 1886 and 1890, declaring that all contracts, trusts, and conspiracies in restraint of trade were illegal. The federal law, passed in 1890, was known as the Sherman Act.

These laws forced the trusts to disband, but new ways of coming together again were quickly found. Firms might amalgamate completely; or a *holding corporation* might be formed, which would set out to get hold of a majority of the stocks of the companies that were to be brought together. It got them by giving a generous quantity of its own stock in return.

and possibly a sum of money as well. It could thus cast sufficient votes at a stockholders' meeting of any of the "subsidiary" or "operating" companies to control the policy and the personnel of the governing board. Between 1897 and 1904 the promotion of holding corporations became a favourite sport of American financiers, and a very profitable one to them, since the promoter always took care to see that he was well rewarded for his services. In 1901 the United States Steel Corporation was formed to hold ten giant companies, which did everything from own ore mines to sell finished steel products. Other giants took hold of oil refining, railroads, tobacco, North Atlantic shipping lines, etc.

The results were not always satisfactory. The corporations had often issued so many shares that there was not enough profit to pay a reasonable dividend on them. Firms which stood outside the combination sometimes did better than the big rival, and competition was far from banished. The government occasionally prosecuted some large offenders under the anti-trust laws and ordered them to disband. The rush to combine therefore halted, but gradually some of the corporations overcame their weaknesses, and put their houses in order.

During the war Congress declared that combinations for carrying on export trade would not be illegal, and after the war the government said it would not attack amalgamations merely because they were big, but only if they exercised unreasonable or undue restraint. This "liberal" attitude, combined with the expansion of the war years and the boisterous optimism of the twenties, caused the country to be swept with a wave

of amalgamations, of holding corporation promotions, and of natural growth of some firms to great size. It has been estimated that by 1927 200 very large corporations controlled 45 per cent of the assets of all American corporations (except banks), held in their hands a quarter of the national wealth, and were run by 2,000 men.

Some combinations sought the benefits of large-scale production and of integration, *e.g.* in making automobiles. Some of them had a partial or complete monopoly, because competition was impossible, because they owned important patents, or because too much capital would be required to set up a rival firm ; for instance, you could not have two telephone companies operating in the same city, you cannot make radio parts unless you have access to patents, and it would require a large sum of capital to start a new steel plant or put a new automobile on the market. But many of the combinations of the twenties were organized simply to make vast profits for the promoters by selling to eager customers mountains of stock on which there could be little hope of earning dividends. Men have resorted to shady, deceitful, dishonest, and illegal practices in all ages in their desire to gain great wealth or power ; and in the post-war world such men often exercised their perverted talents in the field of company promotion or combination.

When the collapse came in 1929, it revealed the folly of some great structures, the incompetence of the managers of others, and the dishonesty of a few. Many fell to pieces ; Congress ordered some kinds of holding corporations to disband ; but many remain, and it would be foolish, as well as impossible, to try

to destroy them all. "Trust-busting" is now recognized to be an unwise general policy. The need is for a policy which will let the advantages of large-scale production, transportation, or sale be enjoyed by all possible forms of enterprise, but to see that these advantages are shared by the stockholder, the consumer, and the labourer, and not all pocketed by the few giant rivals or monopolists. It is not easy to frame such a policy.

Like all other countries, the United States has had its economic ups-and-downs. Sixteen times between 1810 and 1830 did boom and expansion turn to crisis and depression, and usually the bigger the boom the deeper the depression. Each time the boom was marked by some great expansion of production, of westward movement, of canal, railroad, or highway building, of new industries, and of speculation in land, commodities, or stocks. Each time, men with short memories thought a new era was dawning in which all but the timid could amass fortunes easily. The country's vast resources waiting to be tapped made the optimism and enthusiasm greater than it was in older lands. And each time, production or speculation ran to excess, financial difficulties developed, confidence gave place to fear, hopes of profit turned to ashes, and a puff of wind from some political or economic point of the compass sent the house of cards toppling over.

In the crises or panics which preceded depressions it was evident that the banking system was so defective that it could do little to prevent financial breakdown or lessen its severity. Banking in Britain and Canada

is carried on by a few large banks, with branches scattered all over the land. Their policies, reserves, and loans are controlled from central offices ; funds can be moved easily from one part of the country to another as need arises ; and the banks can co-operate in meeting a crisis. Banking in the United States grew up in the hands of thousands of local banks. Some were *state* banks, which worked under state laws, and after 1866 were virtually forbidden to issue notes ; others were *national* banks, which operated under federal laws and could issue notes.

By 1907 there were 25,000 banks, ranging in size from New York firms with resources of a billion dollars to village banks in which the president worked behind the counter. Consequently the reserves, on the basis of which the banks could grant credit and from which they had to meet abnormal demands for cash, were scattered in many hands and places ; it was difficult to "mobilize" them or rush them to any spot where they were urgently needed ; and it was impossible to secure co-operation in facing danger. Further, the banks could not issue notes on the basis of gold, but only in proportion to the value of government bonds they possessed. These bonds represented the national debt, and as that debt was shrinking rather than growing before 1914, the note issue was limited and inelastic.

After the severe crisis of 1907 an attempt was made (1913) to remedy these defects by the establishment of the Federal Reserve System. (1) The country was divided into twelve districts, and in each a federal reserve bank was set up. Into it the local national banks *must*, and the state banks *might*, deposit their

reserves. Thus the district federal reserve bank became the guardian of a great heap of mobilized reserves, which it could use to help the banks when they needed assistance in time of crisis or when there was any special seasonal demand for additional credit. (2) The district reserve banks could obtain Federal Reserve notes from the Federal Reserve Board which supervised the whole system from Washington. These notes were not backed by national bonds, but by 40 per cent of their value in gold and by 100 per cent of their value in "commercial paper," *i.e.* notes given by borrowers and backed by adequate security. Thus the note issue became much more elastic, for it could expand as the gold supply expanded and as business became brisker. (3) The reserve banks were to attempt to apply the brake in times of boom and administer stimulants in time of depression. In the former periods they would make credit more costly and scarce, and in the latter make it cheaper and plentiful.

This system began its work about the same time as the war broke out; when the war ended it had to cope with the period of readjustment and boom. Thus its childhood and youth were spent in difficult times. It could not prevent 5,600 banks, chiefly small rural banks, from failing between 1921 and 1929, for most of them were not members of the Federal Reserve System. It could not prevent the boom of 1919, the crash of 1920, or the wild outburst of the late twenties and the inevitable smash which followed. Or if it could, it did not. In 1930-31, 3,600 more banks failed; in 1932 the tide of bankruptcy continued to rise, and in early 1933 the situation was so serious that every bank in the country was closed by government decree

(March 4, 1933) to prevent some of them from failing. Obviously banking structure and practices were still defective or even bad, and the Federal Reserve System was not all-powerful. Since 1933 Congress has increased the System's power, imposed reforms and restrictions on banks, and provided more safeguards against the degeneration of any future period of prosperity into a boom.

The New Deal. This reform of banking was part of the gigantic task which the depression of 1929-33 imposed on the government. Under the Old Deal of President Hoover the tariff was increased, a farm board tried to keep up prices, and loans were made to help distressed banks, insurance companies, and railroads. These efforts were futile; the ship continued to sink, and when President Roosevelt took office in 1933 the country seemed ready to take to the lifeboats. The New Deal brought new energy and ideas to the tasks of relief, reform, and recovery, and some of its policies have already been mentioned. It provided great sums for the relief of the unemployed, and strove by starting public works to provide them with jobs and "prime the pump"; it hoped that the spending power which it put in their hands, plus the demand for materials, would set the wheels of industry revolving again. It reduced the gold value of the dollar in the hope that prices would go up and thus benefit the farmer. It tried to persuade (or force) farmers to reduce the number of acres they planted or the number of live stock they kept, and gave them money for doing so. It provided loans at low rates of interest for farmers and people who wished to buy, build, or improve homes.

It forced the banks to insure the deposits of their customers. It made those who offered securities to the public tell more of the truth about their wares, and subjected the Stock Exchange to careful supervision. It encouraged labourers to organize in unions, and rival manufacturers or traders to abandon unfair methods of competition. It made trade agreements with other countries by which tariffs were reduced. Everything that promised escape from the horrors of depression or that might prevent their return was tried at least once. Money was poured out like water, and no attempt was made to collect enough by taxation; hence the national debt more than doubled, and by the end of 1938 had reached \$40,000,000,000.

The United States in 1938 is therefore a very different country from that of 1928, and still more from that of the 19th century. The days of rapid expansion seem to be ended. The farmers can produce far more than the country can buy or than can be exported, and are being paid not to produce. Opportunities for new investment are almost non-existent, and no new kind of enterprise is calling for armies of labourers or heaps of capital. Immigration is a thing of the past, and the only land to which the unemployed could be urged to migrate during the thirties was in Alaska. The railroads are tottering on the verge of bankruptcy. A large fraction of the population has to depend on the government for work and income; and the hand of the government is seen everywhere, planning this, controlling that, and encouraging the other. The days of exuberant youth and early manhood seem to have gone, and with them the "rugged individualism," which allowed men to do whatever

they thought most profitable without thought of the effect on others, on the nation, or on the future. Perhaps the country has become middle-aged ; but it is always dangerous to try to guess the age of a country, for the French word for country (*patrie*) is feminine.

Supplementary Reading.—There are several very good general surveys of American economic development, such as Faulkner, H. U., *American Economic History* ; Bogart, E. L., *Economic History of the American People* ; Kirkland, E. C., *History of American Economic Life* ; Lippincott, I., *Economic Development of the United States* ; Shannon, F. A., *Economic History of the People of the United States*. Each of these books contains a bibliography of more detailed works.

CHAPTER VIII

THE COMMERCIAL DEVELOPMENT OF CANADA TO CONFEDERATION

IN Chapter IV. we saw how Britain and France became interested in the fisheries and fur regions of the northern half of North America. But neither fish nor fur led to any great settlement of Europeans on Canadian soil. France did encourage some farmers to make their homes along the banks of the St. Lawrence, there to grow grain for the fur-traders, the fishermen, the soldiers, and local rulers, and for the sugar-planters of the French West Indies. But the fur-trader could carry little food with him on his journeys ; the fishermen were not numerous, while the sugar-planters were so far away that they could get what they needed more easily from the near-by British mainland colonies. Hence, the population of New France was not more than 80,000 when the colony passed into British hands. Fur, fish, and France did not produce a thriving populous colony, and 1763 was the small end of a tiny beginning.

If we think of the French period as the infancy of Canada, we might call that which stretched from 1763 to 1867 the period of childhood. Until 1815 that childhood was marked by two periods of stress and strain—the American Revolution and the War of 1812 ;

but 1815 ushered in the great Hundred Years' Peace. Europe could now turn to its amazing outburst of economic energy, and as Canada saw the menace of attack from the south slowly fade away it could get on with the business of developing its resources, so that by 1867 it was ready for entry into a federation which bound its parts together politically and economically. Let us begin with a survey of economic conditions as they were in the early years of that Peace, but glance backward where it seems necessary.

Canada at that time housed four separate groups of white people. In the far east were the small settlements of the Maritimes; along the St. Lawrence and the north shore of Lake Ontario lay the farms that had been hewn out of the forests, while behind them and up the Ottawa lumbermen were plying the axe; out north and west the Hudson's Bay Company was bartering goods for furs; and beyond the Rockies Canadian and United States traders were establishing their posts and wrestling with each other for control of the fur supply. These four districts had little contact with each other, and could not hope to have until means of communication were made or improved. Each pursued its own career, devoting its attention to such resources as were most easily and profitably exploited.

Immigration. In tapping these resources Canada was helped by a big stream of immigrants after Waterloo. There had been an influx of traders from Britain and New England when New France was captured. During

and after the American Revolution, Loyalists, and some who posed as such in order to get good land free, had gone to the Maritimes or into Upper Canada. But only after peace came to Europe and Canada did immigration set in seriously.

Great Britain, faced with unemployment and distress in post-war days, encouraged her "surplus" population to emigrate. Philanthropic societies gathered the poor together and shipped them off, Scottish lairds transplanted part of their clans, land or colonization companies strove to put the idle labour of the old world on the idle land of the new, while thousands of individuals, dissatisfied with their political or economic conditions, ambitious to improve their material conditions, tempted by the story of fortunes waiting to be made, or eager for land and adventure, joined the exodus. Younger sons of well-to-do families were attracted by the thought of getting an "estate" cheaply, and we read that of six settlers in one region near Peterborough (1833) "four of them have been to a university, one at the military college at Woolwich, and the sixth, though boasting no such honours, has half a dozen silver spoons and a wife who plays the guitar."

The stream of immigration varied considerably in volume; it was smallest when bad times in Britain and in Canada kept people from jumping out of the frying-pan into the fire; it was greatest when booming trade put money into people's pockets and courage into their hearts. Many of these new Canadians came alone or with their families, but some were members of groups under the control of a leader or land company. Lord Selkirk deposited a large contingent of Highlanders in Prince Edward Island, and another group

on the remote Red River. In 1825 a party of 500 Irish from County Cork found homes around Peterborough, while the Canada Company planted communities farther west at Guelph, Goderich, and other places between Lakes Ontario and Huron.

This immigration helped substantially to swell the white population of the country. In 1763 there were not more than 80,000 Europeans in all the colonies, and in 1800 the number, despite the influx of Loyalists, was only about 250,000. But in 1824 Upper and Lower Canada contained nearly 600,000 white folk, and by 1844 this number had doubled. Down east, Nova Scotia was the only province to attract many immigrants; its population doubled between 1806 and 1824, and more than doubled again by 1851. The total population of British North America, excluding Newfoundland, was a million in 1830, and two million in 1846. It took another thirteen years to add the next million, and the four million mark had not been reached when Confederation came.

The Maritimes. What sort of a Canada was it to which the immigrants came? In the Maritimes certain areas were concentrating on special branches of production. New Brunswick excelled as lumber-producer, because of the quantity and quality of the forests found along the valleys of the Saint John and Miramichi and the ease with which logs could be floated down these streams. British capital entered the industry, and in eight years during the twenties over 40,000 masts and spars and two million tons of wood were exported, while much timber was used in the thriving shipyards of the province. The lumber interests were hit hard by fre-

quent forest fires, the most dangerous of which swept nearly the whole Miramichi valley (1825), and was described as "one of the most terrible natural conflagrations of which we have any record in the history of the world." In the backwoods paper money and rum were plentiful, but, to quote a contemporary author, "New Brunswick is healthy; old age is frequent in persons possessed of the slightest degree of sobriety." On the coasts fishing was actively carried on in locally-built boats, and some of the more venture some inhabitants of Saint John were sending out vessels to catch whales and seals in the Pacific.

Nova Scotia resembled New Brunswick in its staple activities of lumbering, fishing, and shipbuilding. Nearly a hundred ships were launched each year at Pictou and other shipyards, and many of them crossed the Atlantic to be sold in Great Britain. Cod-fishing was an important industry, with 2,000 boats at work. But the Nova Scotian was becoming more than a catcher of fish or an axe-man. Among the magnificent harbours of the province was that of Halifax, the chief American station of the British fleet and garrison town of the British troops. The port was ice-free and suitably situated for trade with the West Indies. To feed the port and fortress and to supply the Indies, the rural population began to clear land, grow crops, and tend live stock; roads were made, and farms developed. The 2,700 ships which in 1830 entered the harbours of Nova Scotia to take away farm products, fish, and lumber brought manufactured goods from Britain, sugar, wines, coffee, tobacco, and nearly a million gallons of spirits from the West Indies. Halifax became a busy port, with rich merchants, bankers, and ship-

owners. One of its leading citizens founded the Cunard line of steamships in 1839.

Nova Scotia's mineral wealth was already known, as was that of Cape Breton. But there was no demand that would justify the exploitation of the iron deposits, and the British Government discouraged the working of the coal-beds, lest cheap fuel should lead to the establishment of manufactures and reduce the demand for British wares. In 1827, however, the Duke of York, to whom the mineral deposits had been given, leased them to a group of his creditors, who became known as the General Mining Association. This Association, with a capital of \$1,600,000, was Canada's first big joint stock industrial enterprise. Soon it had over 800 men at work in three mines, the most important of which was at Sydney. Steam tugs were built to haul the coal barges from one mine to the vessels in the harbour, and railroads were built from the other mines to the berthing places of ocean-going boats.

When the *Royal William*, built in Quebec, made steamship history by using steam power (as well as sails) all the way across the Atlantic in 1833, it called at Pictou to take on local coal for its journey. When England was reached, the ship's officers spoke in high praise of the Canadian fuel, and declared that they preferred it to British. With the growing use of steamships and the coming of railroads, Sydney coal found an expanding market on the Atlantic seaboard. In addition, the mining company opened up a valuable deposit of gypsum, which was exported to serve as fertilizer on the farms of the eastern United States.

Prince Edward Island, now the "garden of the gulf," had to face two big obstacles in its early career.

(1) Most of the land had been given to absentee British proprietors, who would neither come and work it themselves nor sell it to others. (2) Britons had been told that the island was a heap of sand, rock, and swamp, or at best was only "a pastoral country." Progress was therefore slow ; few settlers came except a handful from the Hebrides and other parts of Scotland. Only gradually was it proved that the land was fertile and the climate good and healthful. Some fish and timber found their way to outside markets and a few ships were built, but the island was occupied mostly by small, self-sufficing farmers.

Lower Canada. By 1825 Lower Canada had become, and Upper Canada was becoming, an almost unbroken fringe of cleared settlements along the water-front of river and lake. The seigniorial system still survived in the old communities of Lower Canada; tenants held their long ribbon-like farms—sometimes sixty times as long as they were wide—on feudal terms. They paid a small annual rent in money, handed over periodically some provisions or live stock, such as a pig, a goose, a few fowl, or some wheat, took their corn to be ground at the landowner's grist-mill and gave him one-fourteenth of the flour ; when they fished, a portion of the catch went to the seignior's house, and each year a fixed part of the grain crop was given to the local priest.

In 1840 there were still about 170 seigniories, containing nearly 11,000,000 acres, but with the changes that had taken place since 1763 the system no longer worked satisfactorily. Many estates had passed into the hands of British owners who were beginning to

demand that their lands yield more revenue, and insisting on the payment of the annual dues as well as those which should be paid, but had often been evaded, when a holding changed hands. The habitant therefore grew more and more dissatisfied, and in 1854 Parliament took steps to help feudal tenants to become free of the seignior.

The French-Canadian country people moved slowly ; they produced for themselves rather than for a market ; they disliked the bustling merchants who had swarmed into the province since 1763, eager to upset the old ways of life, and greedy for profits. Their little world, bounded at one edge by river-bank and at the other by the forest, kept them busy. They sent out hunters, trappers, lumbermen, and occasional settlers to the west, but in the main they stayed at home, subdividing their farms among their numerous progeny. Immigrants from the United States and the United Kingdom entered the province, and by 1840 it was estimated that there was one British inhabitant for every two French-Canadians. Though the British were found most strongly entrenched in the commercial quarters of Montreal, they were also scattered far and wide in farming communities, especially west of Montreal.

By 1830 the chief area of new settlement was in Upper Canada. Some regions were now quite mature, but in others the pioneer was wrestling with the problems which were common to the whole of Eastern North America. His task was a threefold one. (1) He had to clear some land in order to make room for his house and crops, and meanwhile live on

Pioneer Problems

his capital or find work to keep him till his first crops were ready for harvest. (2) He had to supply his own needs for food, shelter, and clothing as far as he possibly could with his own skill and labour. (3) He had to produce a marketable surplus of something which he could exchange for the goods he wanted from the outside world.

The first task was simplified to some extent (after 1815) by the fact that Canadian lumber was finding a large market in Europe and, after 1821, eclipsed furs as the country's chief export. If the settler's land was near a stream, the trees, when cut, could be floated down to the Ottawa or St. Lawrence and so reach a market. Further, the lumber industry needed labour, and in winter many men could find employment in it or by hiring themselves out to clear settlers' land. As a writer said in 1840, "the lumber trade is of the utmost value to the poorer inhabitants, by furnishing their only means of support during the severity of a long winter, particularly after seasons of bad crops, and by enabling young men and new settlers more readily to establish themselves on the waste lands." In this winter occupation many found a way of making the first years of settlement less lean.

Potash. For the timber that could not be sold another use was found. European textile manufacturers needed potash for bleaching their fabrics, and during the 17th and 18th centuries Holland was the most famous bleaching country. The Dutch secret of success seemed to rest on the use of "ashes of Muscovy," *i.e.* potash made from the ash of trees cut down and burnt in Russia. During the 18th century the British

began to rival the Dutch at this work, and as the cotton industry grew up in Lancashire the demand for potash rose rapidly. In 1767 a British settler in Lower Canada set up a potash plant, and in 1770, 50 tons of potash were shipped to England. The product obtained from North American trees, especially from maple, beech, and birch, was superior to that brought from Russia ;



Early settlers on the St. Lawrence taking their timber to market.

its percentage of impurities was much lower, and the best " pink Canadian potash " was at least 60 per cent pure.

Here was a valuable source of income for the pioneer ; the timber that littered his clearing could be turned into money—or rather into goods—by a process that was simple and inexpensive. The timber was either burned standing, or cut, collected into piles, and set on fire. The ashes were put into a trough or tub, and water was

poured on them at intervals for several days, in order to dissolve all the soluble chemicals, chiefly potassium compounds. This solution, called lye, was put in a big iron kettle and evaporated over a wood fire. What was left in the kettle was potash ; if it was treated further to free it from impurities and make it crystalline it was known as *pearl ash*.

Almost every Canadian pioneer farm had its tub and



Quebec was the chief shipping point for the early lumber trade.

kettle. The potash went to the local storekeeper, and so, through Montreal and Quebec, to Europe. Farmers who did not make potash themselves sold the wood ashes, and the local merchant extracted the chemical in his own plant. In 1831 nearly 200,000 barrels of pot and pearl ash went through Quebec, and until 1850 the export trade was important. Eventually, however, the farms were all cleared and the farmers

too busy to bother with the kettle and tub ; European chemists found other bleaching materials or discovered new methods of making potash, and one of Canada's early occupations was abandoned.

Pioneer Production. The second task of the pioneer was to feed, house, and clothe himself and his family. On good land the trees were large and their trunks stood far apart. If they could be prevented from bursting into leaf and thus shading the ground, the space between them could be cultivated almost at once. The common practice was therefore to "ring-bark" the tree, *i.e.* cut off a ring of bark about a yard from the ground. This prevented the sap from rising ; the tree put forth no leaves and soon died. The gaunt dead giants did not look picturesque, but they could wait till the farmer had leisure to burn or cut them down ; meanwhile the soil was open to the sun, and, thanks to the coating made during long centuries by decayed leaves, was fertile and easily worked. Corn might be planted first as a subsistence crop, but wheat took its place as soon as possible. According to one contemporary writer, " fifty bushels of wheat per acre are frequently produced on a farm where the stumps of trees, which probably occupy an eighth of the surface, have not been eradicated ; some instances of 60 bushels per acre occur, and near York (Toronto) . . . 100 bushels of wheat were obtained from a single acre ! In some districts wheat has been raised successfully on the same ground for 20 years without manure."

Time and hard labour gradually turned the pioneer's forest patch into a productive mixed farm. Corn, wheat, potatoes, and vegetables were the staple food

crops, rye or barley the chief drink crops ; in spite of wolves and bears, a few hogs, goats, sheep, cattle, and poultry were kept, but the cost of winter shelter and fodder prevented the pioneer from giving much attention to live stock ; fruit trees were planted, flax and tobacco were cultivated. Nature added her quota to the food supply in the form of fish, venison, duck, pigeon, nuts, and maple syrup, and an ice-house allowed fresh food to be kept through the summer. Thus a developed farm could supply most of the essentials of a simple well-fed life. But before that stage was reached there were two or three years of back-breaking work, and winters in which the chief food was unleavened bread and salt pork—"the standing dish for breakfast, dinner, and tea."

The pioneer had to be a jack-of-all-trades. He built his own home, first a wigwam of bark and boughs, then a shanty, and then a log-house. When the district had become sufficiently populous to support a sawmill, he took his logs to be cut up, and built a neater and bigger frame home, with more rooms and fireplaces. For big tasks, such as the construction of a barn, he invited his neighbours to a "raising bee," at which the residents of the countryside co-operated in erecting the building in a few hours, and then co-operated in consuming the lavish supply of food and drink prepared for the occasion. Most of the furniture in the home and implements on the farm were home-made, and remained so until a carpenter's or blacksmith's shop was set up in the neighbourhood. Wheat had to be ground on the farm until the district got a grist-mill, and skill with axe or other tools was necessary until sawmills became less few and far between. Candles and soap,

butter and bacon, all were the product of domestic labour.

The pioneer household had to make its own clothes. Father made and repaired the footwear of the family ; sometimes he tanned leather, but often contented himself with making moccasins of rawhide. Leather and skins had other uses, and one settler in 1807 recorded in his diary the fact that he had just " helped make a pair of leather trousers " for his eldest son. Deer-skin was often used for making shirts and petticoats. But the most important domestic usufacture was that of woven or knitted goods. In 1830 it was estimated that there were about 13,500 looms in the cottages and farms of Lower Canada, on which were produced nearly 4,000,000 yards of coarse cloth, linen, and flannel each year. In Upper Canada similar conditions prevailed ; not till the second half of the 19th century did the wheel and loom fall into disuse in Central Canada, and even to-day, in many a cottage in Quebec or in Ukrainian and Doukhobor settlements of the prairies, the whirr of the wheel or the slow clatter of the loom may still be heard.

Production for Market. The final task of the early settlers was to produce commodities that could be sold in the local market or exported. When the pioneer farmer thought of an export crop it was always wheat that came first to mind. Corn was his staple subsistence crop, but wheat was his cash crop. Production for an overseas market depended partly on better shipping facilities on the lake, the river, and the ocean, and partly on the willingness of the British Government to let the wheat in. The facilities gradually improved,

and the government became more willing, as we shall see in a moment. Meanwhile there was a growing local market in the province itself as the population of the towns expanded and that market steadily became more accessible. Traffic along the lake shores increased as more sailing ships and steam vessels were built, and the old trails through the bush were displaced by rough corduroy roads, which in turn slowly gave place to gravelled and graded highways. Following the old European practice, the government ordered every male adult to work a certain number of days each year on the roads, bringing a wagon and team with him if he possessed one. This "statute labour" was often badly done, and men preferred to pay half a dollar instead of giving a day's work; but the system was better than nothing.

Life therefore gradually moved away from the self-sufficing stage towards the commercial. The exports of the two Canadas had risen by 1832 to nearly \$4,000,000 in value. Of this sum almost half was accounted for by timber; grain and flour exports were worth about \$1,000,000, but their value varied violently then, as later, in accordance with the size of the crop, the price per bushel, and the willingness or unwillingness of the other countries to admit grain imports. The export of ashes in 1832 was almost as valuable as that of wheat and flour. Fur exports down the St. Lawrence had disappeared, for after 1821 the pelts left the country through Hudson Bay. Meanwhile the home market was growing, and was helped by the fact that the garrisons and those engaged in constructing canals, forts, highways, or ships needed food, clothing, and materials.

Growth of a Trading Class. The Canadian trading class emerged from two quarters. On the one hand there were the merchants of Montreal, Quebec, and, later, Toronto, who were chiefly interested in the fur trade, then in lumber, potash, and wheat. Their business was to gather in these products, ship them to England, and get imported manufactured goods in return. How they did it will be described later. On the other hand, there was the retailing class of traders, represented by the pedlar and the country storekeeper. Hundreds of pedlars were travelling the roads of the adjacent American states before 1800, and some of them crossed the border as soon as there was enough population in any part of Canada to make it worth their while. They carried small articles of domestic use, such as the womenfolk would need—kitchen tinware, pins, needles, scissors, ribbons, combs, buttons, children's books, handkerchiefs, cotton goods, and, later on, such luxuries as clocks, silver-plated ware, and good shoes. In addition they carried news and gossip.

The general store appeared soon after the pedlar. Once population in a district became at all thick or a village began to take shape, some one would set up a general store. The early storekeeper had to be a man of many parts if he was to make a living out of the small number of customers within his reach. Thus we read of one William Bell, who lived near the Bay of Quinte (about 1830). He was coroner for his district, justice of the peace (or Squire, as he was often called), general merchant, and apparently general factotum. His ledger shows that he sold such varied commodities as whisky, onions, apples, fruit trees, skins, dressed timber, meat, paper, tobacco, sleigh runners, and men's

and women's "furnishings." He was banker and money-lender, he dealt in live stock, kept simple medicines, hired out horses and oxen for ploughing or hauling, did carriage and cartage work, sent money to distant places on behalf of his clients, sold lasts, awls, and leather needed by the family cobbler, lent shuttles and other odds and ends, and even supplied board and lodging. Finally, he established a miscellaneous workshop, in which he and his employees made boots and shoes, shirts, "weastcoats," and "pantaloons," and on one occasion he entered in his ledger, presumably on behalf of a one-legged customer, "For half of a pair of shoes . . . 5/-."

As life became more settled the storekeeper extended the range of wares he had on his shelves, while in the larger towns some stores ceased to be general, specialized on one or two lines of goods, and began a mail order business for country customers. By 1840 the country merchant was handling comforts and even luxuries as well as necessities; he sold West Indian spirits and sugar, tea, snuff, more expensive dress goods of muslin, calico, or silk; crockery, glassware, good shoes for Sunday wear, and perhaps even violins or flutes. The age of deer-skin shirts and homespun was passing away. In 1835 there were nearly a thousand stores in Upper Canada, of which 900 were outside Toronto.

The pioneer paid for his goods with goods. The storekeeper took almost anything that he could sell either in the local market, or, through the merchants of Kingston, Toronto, Montreal, and Quebec, to consumers in other parts of Canada or abroad. Potash or wood ash was one of the chief articles with which

the farmer made payment ; wheat, corn, meat, butter, tobacco, lumber, and skins played their part in reducing the debit balance at the store. In the same way the farmer paid his bill to the blacksmith when smith's shops were set up ; we know of one settler who paid for shoeing, repairs, and andirons by delivering at various times to the smithy many pounds of " veel," beef, and butter, fourpence in cash, and still owed nearly a sovereign.

Squire Bell employed some people making articles which formerly had been made by the family itself, and some shopkeepers had potash plants. **Early Industries** These instances are indications of the rise of specialized little industries which relieved the farmer of a few of his many tasks. First there came the grist-mill and the sawmill ; both were being established in Upper Canada before 1800, and by 1836 there were about 600 grist-mills and nearly 1,000 sawmills scattered over the settled parts of the province.

The mill was built alongside some rapid or waterfall, and often became the nucleus of a village or town. Near it lived the mill employees ; to it came the farmers from the scattered countryside, with their logs or sacks of grain ; the general store grew up to serve those who came to the mill, and the storekeeper became the early postmaster. A church was built, and an inn ; a brewery or distillery, a potash factory, a tannery, a blacksmith's shop which might grow into a stove foundry, implement works, carriage or wagon factory ; a soap or candle works, a carding mill to which wool could be brought to be prepared for the domestic loom ;

a fulling mill, a cobbler's shop, and later a tailor's or dressmaker's establishment. So the farmer relied more and more on others to do special jobs for him ; he could give more of his time to the central task of looking after his farm, and make his frequent trips for business, pleasure, and gossip to the mill, the store, the still, and the blacksmith's shop.

By 1835 there were one or two still more ambitious industries. Down at Three Rivers, the St. Maurice ironworks had been famous during the French régime. The local iron ore was remarkably free from impurities ; it was smelted with charcoal, and gave a very fine iron which was considered equal to the best Swedish metal. After 1763 the industry was carried on by English enterprise, and as settlement advanced a growing market was found for bar iron for the blacksmith, for kettles used to make potash, soap, or sugar, for kitchen utensils and house stoves. The settler felt that he was at last reaching a stage of comfort when he could afford a St. Maurice stove ; it was usually the most expensive single article of furniture in his house, and its installation would be a fit occasion for a celebration.

In Upper Canada rich iron ore was found on the surface, north of the Bay of Quinte, in Hastings County. In 1823 a smelter and foundry was set up at Marmora, with " a steam engine driving powerful lathes " ; but as there was no waterway on which the products could be carried cheaply to market, the works were never so successful as those at Three Rivers. At other places small iron or brass foundries had been set up by 1836, as well as paper, salt, plaster, or oil works ; iron and copper were being mined east of Gananoque, and lead

had been found in the Niagara area. But all these ventures were on a small scale, and the chief industries centred on the lumber mill, the grist-mill, and the potash factory.

Transportation

Canada's first transportation problem was that of making the best possible use of the waters of the St. Lawrence drainage area. The population was settled on or near the water's edge, and while roads were necessary, long distance carriage and contact



Summer travel by Canadian stage-coach.

with outside markets depended on the use of the lakes and the big river. That waterway from the head of Lake Superior to the Atlantic was a magnificent gift of Nature, but it was the sort of gift horse that had to be looked in the mouth. For in its natural condition its value was reduced by two disabilities. One of these, the winter ice, could not be overcome, but the other, falls and rapids, could, by building canals and locks. Between the level of Lake Superior and that of Lake Huron was a fall, at the Sault Ste. Marie rapids, of 20 feet; the step down from Lake Erie to Lake Ontario at Niagara was about 330 feet, and at the seven



Winter travel by Canadian stage-coach.



The Governor of the Red River travelling by water, 1824.

rapids on the St. Lawrence the river fell about 220 feet.

So long as transportation was solely a matter of handling furs and fur-traders' supplies in canoes, these obstacles to navigation could be overcome by the portage, and the lumber of the Ottawa Valley or Upper Canada was none the worse for having shot the rapids. But by 1825 many factors were compelling Canada to find something better than the portage. Immigrants wanted an easier method of getting to their new home ; Upper Canada wanted a safe channel down which it could send its potash, grain, flour, and trimmed timber, and up which it could import its supplies more easily, while during the war of 1812 British troops found that it was uncomfortable to have to communicate with Upper Canada along a river broken with rapids and bounded on one side by enemy territory. The merchants of Montreal had visions of the day when that city would be the great port for the millions who were flocking into the states which bordered the lakes. Montreal was nearer than New York to Europe ; goods which went from Buffalo to Europe via Montreal would travel 280 miles less than if they went through New York ; goods from Oswego would save 360 miles by coming down the St. Lawrence. Why should not the St. Lawrence be the highway between Europe and the heart of North America ?

But if these dreams were to come true, Montreal must strive hard to make them do so. The United States now had the Erie Canal, along which cargoes went from the Lake Erie region and points farther west to New York, while branch canals attracted trade from Lake Ontario shores. Settlement in Upper Canada was being made

chiefly beyond Toronto, and from this region Buffalo, the Erie route, and, later, the American railways were accessible. Montreal must act quickly and courageously if she was to take any advantage of her position.

Another cause of the need for better water communication was the coming of the steamship. Canada was slow in building railroads, but quick in building steam vessels. In 1807 Fulton made his famous trip up the Hudson in the *Clermont*. Two years later John Molson and two other Montreal residents copied him. Their boat was called the *Accommodation*; she was only 72 feet long, and her Canadian-built engine was rated at 6 h.p. In 1809 she started on her first voyage down to Quebec, and as she passed the settlements at dusk, with no sails spread, travelling east against a west wind, and with a stream of sparks pouring out of her funnel, she put terror into the heart of the habitant. Since the river had no lights or buoys, she anchored at night, and took three days to travel the 180 miles; but at that time it took fifteen or sixteen days for sailing vessels to do this trip. Passengers and freight traffic were sought for, but the experiment was a financial failure, and Molson determined to get a better boat and engine. He went to England, bought a 28-h.p. engine from Boulton and Watt, and in 1811 the *Swiftsure*, 120 feet long and 24 feet wide, was launched. During the war of 1812 the vessel was a troopship on the lower river, and was soon joined by two still better boats.

Meanwhile steam was being adopted for lake traffic in Upper Canada. The building of sloops and schooners was begun at an early date, and the first steamship was launched in 1816 at Bath, then a promising har-

bour and shipbuilding centre a few miles west of Kingston. This vessel, the *Frontenac*, was 170 feet long, and cost nearly \$100,000. The *Frontenac* and her sister ship, launched in 1818, plied regularly along the lake shore, and as far down the river as Prescott, but at this point further progress was stopped by the first of the rapids.

Canals. The growth of steamship traffic gave added force to the demand that the obstacles to navigation be overcome by the construction of canals. When the British took over the country, a canal boom had just begun in England, and soon four shallow "cuts" were made round some rapids, in order to make a way for the flat-bottomed boats that were the usual river craft about 1800. After the war of 1812 construction was undertaken more seriously. It was slow work, for Upper and Lower Canada could not pull together, and the farmers were often opposed to the costly plans advocated by the merchants. But by 1850 the whole series of rapids on the St. Lawrence could be avoided. A boat going from Montreal to Kingston would pass through forty miles of canal, and be lifted about 200 feet by passing through twenty-seven locks. It could then go west and "climb Niagara" through the Welland Canal which had been opened in 1829. Here was a veritable staircase, for twenty-six locks were needed to raise the vessel 330 feet. In 1855 the United States opened a canal at the "Soo" (Sault Ste. Marie) on the American side of the rapids, but the Dominion Government did not authorize the construction of a canal on the Canadian side till 1887.

There was an alternative route from Montreal to

Upper Canada. This was up the Ottawa, and then along the Rideau Canal from Ottawa to Kingston. The British Government began to construct the canal in 1826, purely as an aid to the defence of the country. Its purpose was to "enable the government to forward stores, provisions, ammunition and troops to the upper part of the Province without the risk of capture or of being engaged in time of war in petty hostilities with the Americans on the St. Lawrence"; and since it was thought that only small gunboats would be needed for this work, the locks, which determined the size of ship that could use the canal, were fixed at 100 feet by 20 feet. But Colonel By, the engineer in charge, was so convinced that this route would be valuable commercially that he urged the British authorities to make the locks bigger, and to finish the Welland Canal on the same scale. As to the extra cost, that was a trifle. "Whether the works I have now the honour of projecting cost one or two million (pounds), it is of no moment," said By, compared with the immense volume of trade that would flow through the bigger Welland and Rideau Canals.

By's optimism was liberally sprinkled with cold water by the authorities in Britain, but he won a partial victory, for the Rideau locks were made to admit vessels much larger than gunboats. The canal took six years to finish; it cost about a million pounds, but although it was used for a time by immigrants and traders, it failed to attract that large volume of trade of which By had dreamed. In this respect it fared little worse than the St. Lawrence canals. The competition of Buffalo, Oswego, and the Erie Canal, and the coming of railways, reduced the value of the

canals. American goods moved on American routes, and many Canadian goods did likewise. The long waterway from the lakes to the Atlantic refused to become as important in fact as it had seemed in the fancies of the twenties and thirties.

Communications. Between 1800 and 1850 Canada obtained other aids to commercial life. By 1834 she had 48 newspapers, but none of them was a daily. The post office slowly gave a better service; in 1800 there were only 26 post offices open, but in 1834 there were over 230 in Upper and Lower Canada. A rural district was fortunate if it had a delivery once a week; even between Montreal and Quebec there were only four mails a week. The delivery of a single-sheet letter cost 18 cents between Montreal and Quebec, and 59 cents between Montreal and Bytown (Ottawa). Two sheets counted as two letters, and no envelopes were used. People therefore got the largest possible piece of paper available, and having filled it with writing from side to side, they often turned it sideways and re-covered the space with writing running from top to bottom. Yet, in spite of high cost and poor service, settlers were so anxious to get their mail that one of the earliest acts of any populated district was to petition the authorities for a post office. Of one postmaster it is recorded (1850) that he filled his plug hat with letters on Sunday and distributed them at church in order to save the settlers a long walk to his office. As mail-coach services were established on the main roads the delivery became more frequent, but not till the coming of the railroad did any part of the country get a really good service.

**Currency
and Credit**

The colonies slowly secured a satisfactory currency and adequate banking facilities. Barter was the basis of most early trade ; the Indians brought their furs to the white man's posts or villages and traded them for blankets, powder, or fire-water ; the farmer bartered with the local merchant, smith, or mill-owner, and workmen clearing land were paid largely with salt pork. But even before the country had an adequate supply of currency, the value of goods was expressed in terms of money, and the storekeepers did much to develop the "making" of paper credit money. For instance, if Farmer Smith sold potash worth £10. to Squire Bell, he might get in return a receipt on which the Squire acknowledged his indebtedness. If Smith wished, he could then hand over this receipt to some creditor, who would thus be able to get £10, or its value in goods, from the storekeeper. Or Smith might give his creditor a promissory note or I.O.U. for, say, £10 ; the storekeeper would pay this sum if the holder of the note presented it to him, and debit Smith's account with that amount. But whatever their form, paper promises or orders to pay were the general medium of exchange in early days.

Metallic money was scarce during the early 19th century. There was no Canadian mint till 1908, and the country had to depend on the coins brought in by settlers or traders, or occasionally by the government. At the ports the coins that changed hands were an amazing jumble, drawn from almost all the countries on both Atlantic coasts. There was the British guinea, the American eagle, the Portuguese Johannes and moidore, the Spanish milled doubloon, and the French

louis d'or and pistole, all made of gold, while the silver coins included the British crown and shilling, the Spanish and American dollar, and the French crown, six-franc, or five-franc piece. But the dollar was the least scarce coin, and while an attempt was made for a time to express values in terms of pounds and shillings, the decimal system, with the dollar as the unit, was formally adopted in 1858.

In the thirties it was estimated that one-third of the coins in the country had become depreciated by wear and abuse, and if any payment above £20 was made in gold, either party could require that the coins be weighed and $2\frac{1}{4}$ d. deducted for each grain that the money was short-weight. In Upper Canada gold and silver coins were not legal tender if they were one-twenty-fifth less than full weight. Some governments issued notes which they would not redeem in metal, and while these notes were legal tender inside the province that had issued them, they were not accepted in neighbouring provinces except at a big discount; some pound notes were once sold by auction for eleven shillings.

Banking. Canada had no proper bank till 1817. Prior to that year the storekeeper, miller, or wholesale merchant might do a little banking as a side-line. In 1817 the Bank of Montreal was founded, and almost immediately afterwards other banks were set up in Quebec, Montreal, Kingston, and Toronto. The Bank of Upper Canada was set up under the wing of the government, which supplied a quarter of the capital and nominated a quarter of the directors. In 1836, twenty-one banks were at work in the various provinces,

with a total capital of over \$6,000,000. Some of them were pursuing already that practice of establishing branches or agencies which is one of the chief differences between the banking systems of Canada and the United States. Five million dollars worth of bank notes were in circulation, and although Canada never had an orgy of "wild-cat" banking such as the United States had, there were times when the amount of credit granted was dangerously large. Hence, when in 1837 a commercial crisis hit New York and the banks there were unable to redeem their notes in specie, the Canadian banking system was shaken to its foundations. The situation was made worse by a failure of the Canadian wheat crop. The Bank of Montreal suspended specie payment; the legislature of Upper Canada permitted banks to refuse to honour their notes, and forbade any new banks to issue notes unless they got parliamentary permission. Thus, Canada experienced her first serious modern crisis, and the depression which ensued helped to foment the political disturbances of 1837-38.

During subsequent years, legislative steps were taken toward the system of strictly regulated banking that we have to-day. In 1841, when the two Canadas became united, uniform banking control was imposed; in 1850 banks were forbidden to issue notes unless they had been incorporated by a special act of Parliament or had obtained a charter; periodical statistics were demanded from each bank, and in order to emphasize the need for cautious banking practice it was decreed that shareholders should be liable for *double* the amount of their share capital if the bank became insolvent.

Canada's commercial progress would have been very slow during the first half of the 19th century but for the preference given by Britain to many Canadian products, especially the two new staples, lumber and wheat. From 1821 to 1840 Canadian timber paid a duty of only 10/- a load on entering British ports, but its chief rival, Baltic timber, paid 55/-. On some dressed timbers the preference was even greater, for the foreign wood might pay eight to twelve times as much duty as did the Canadian. Thanks to this preference, and to the fact that Canada had almost a monopoly of the white pine needed in building the new industrial cities of Britain, colonial timber supplied in 1840 about three-quarters of the British demand. It would be hard to say how much of this predominance was preference and how much was pine ; but the Canadian lumber and shipping interest regarded the tariff concessions as the foundation stone of their prosperity, waxed wealthy on them, and "saw nothing but blue ruin facing them should the timber duties be interfered with" (Shortt).

The preference on wheat was complicated but substantial. When peace came in 1815 and the price of farm produce collapsed—as it always does when a war ends—British landlords and farmers obtained "farm relief" by the passage of a law which forbade foreign wheat imports unless the price of British wheat reached 80/- a quarter or about \$2.50 a bushel, and of colonial wheat if the price was less than 67/-. This "Corn Law" closed the British door on Canadian grain in some years.

In 1825 Huskisson amended it so as to admit Cana-

dian grain at a duty of 5/- a quarter (15 cents a bushel) if British wheat was selling at less than 67/-; but if the British price was over 67/-, the Canadian import was charged only sixpence (or 1½ cents a bushel). Foreign grain was taxed much more heavily; Canadian wheat was admitted at a duty which might be only one-quarter that paid by its foreign rival.

This concession was of great value to the farmers of Upper Canada and to the millers, merchants, and shippers of both provinces. Exports rose high as the Ontario grain fields spread. Yet more concessions were sought. If only the British Government could be persuaded to wipe out that 5/- duty, but keep the tariff on foreign grain high; if it would accept as Canadian any flour made in Canadian mills from American grain, then the Canadian wheat grower, trader, miller, and shipowner would be very happy men, and the St. Lawrence canals would be crowded with grain ships. It was good news, therefore, that came from London in 1843; the British Parliament had decided that Canadian wheat and flour were to be admitted at the nominal duty of 1/- a quarter (3 cents a bushel), and that flour made in Canada from United States wheat was to be admitted as Canadian.

In *Canada* these new terms were interpreted as revealing a desire to encourage the settler, help the millers, and bring ships through the canals. The canals were therefore pushed on with vigorously till they were completed, with larger and deeper locks. Upper Canadian farmers increased their wheat acreage, and Montreal millers expanded their plants to cope with the expected flood of Canadian and American grain.

In *England* those new terms had a very different meaning. They were one more step toward the sweeping away of corn laws, preferences, navigation laws, and all else that survived of England's old patchwork protective system. The Free Trade movement was gaining great strength; it wanted to clear away all restrictions on foreign trade, and had little sympathy with any producer who could not stand up without the aid of such props as preference. Two-thirds of the Canadian lumber trade, said McCulloch, a prominent free trader, is "forced and factitious"; it is bad for England, since it makes her pay more for her timber than she otherwise would; it is equally bad for Canada, for "we withdraw the attention of its inhabitants, from the most profitable employment they can carry on, that is from the cultivation of the soil, and make them waste their energies in comparatively disadvantageous pursuits. . . . Canada is not, and never has been, of any considerable advantage to England. (If we abolish the preference) we question whether she would be found to possess a single article that could be advantageously exported to this country, or that we could not buy cheaper and better elsewhere." Why, therefore, spend \$7,000,000 a year there in defence, when there is no equivalent advantage, and when there is "in the mind of every man of sense in the Empire" a "full conviction . . . that at no very distant period Canada will be independent or an integral portion of the United States?"

Perhaps Canadians had been blind to the growing success of the Free Trade cause; consequently the repeal of the Corn Laws in 1846, the admission of wheat from any part of the world duty-free, and the whittling

away of the preference on timber, furs, potash, etc., during later years, filled them with dismay and fierce resentment. How dare mother decide to buy her goods where she could get them cheapest, regardless of whether they were imperial or foreign in origin ! What was the good of a parent who cut family sentiment out of business ? The Parliament of the united provinces sent an address to Queen Victoria, in which it hinted that if the colony was no longer to have its preferences it must consider whether it was worth while staying in the Empire. The Montreal merchants showed their anger in the famous " Annexation Manifesto " of 1849, in which they declared that the only remedy was " a friendly and peaceful separation from British connection and a union upon equitable terms with the great North American confederacy of sovereign states."

Perhaps those who signed this declaration, did not mean all they said ; and annexation did not happen. But three other things did—the beginning of a protective tariff policy, the arranging of the reciprocity agreement with the United States, and the movement towards Confederation.

The Tariff. Until the eighteen-forties the tariff on goods entering Canada was made or approved by the British Government, and was framed to favour British wares and ships. But after 1846 the provincial legislatures gained control over customs, and by 1859 had asserted their right to shape a tariff without any interference from London.

By that date the need for revenue and the desire to protect local manufactures were forcing the Parliament

of United Canada to make the tariff wall higher. The canals had been costly and were not paying interest on the capital outlay ; roads and other public works had been constructed with borrowed money, and the interest bill was mounting. Manufactures were struggling into being, fed by the demand for goods for the canals, the flour-mills, the shipyards, the new railroads, and the farm. In the small towns of Upper Canada these factories met a local demand, and when the railroad came they would be able to put their goods on to a wider market. In Montreal a little industrial revolution took place when water, diverted from the Lachine rapids for the enlarged canal, was made available for driving machinery. Cheap power and cheap labour were at hand, so factories of many kinds were set up. The chief were the flour-mills, one of which was five stories high, had twelve pairs of grinding stones, produced 800 barrels of flour daily, and employed 200 men. Around the locks there were other plants making engines and boilers, paint, cotton goods and woollens, tools, rope, tobacco, agricultural implements, paper, nails, fire-engines and rubber goods, while in Montreal itself clothing works, shoe factories, and large printeries were to be found by 1856.

Some of these works were quite large in the scale of their operations, as for instance the rubber factory which made 1,000 pairs of rubbers or shoes daily, or the sugar refinery, seven stories high, which produced 3,000 barrels of sugar a month. Some boasted about the high quality of their wares, as for example the woollen mill which won fifteen first- or second-class medals at the Paris Exhibition in 1855, or the fire-engine factory which won a gold medal at that exhibi-

tion and received orders from Europe for its engines. Some were up-to-date, as for instance the shirt factory which employed three hundred women and used some of the new-fangled sewing machines from the United States, or the marine engineering works which was proclaiming the superiority of its screw propeller over the old paddle-wheel.

Few of these industries could hope to expand by finding a foreign market. Their wares were dear in comparison with imported products, so they must be assured of the home market by the imposition of heavy duties on goods from outside. The protectionist cause made little headway, however, until late in the fifties, when depression in the United States and in Britain pulled down the price of wheat, and cut down the demand for Canadian products as well as the supply of capital available for railroads and public works. Faced with a shrunk revenue and swollen interest bills, the provincial government was driven to get more money by raising the tariff. Some duties were fixed as high as 20 per cent, and therefore looked protective, so the British Government read Canada a lecture on the blessings of Free Trade. But Galt, the Finance Minister of the day (1859), retorted that a self-governing colony must be allowed to frame its tariff in accordance with what it thought best.

Reciprocity The question of reciprocity with the United States was first raised in the forties, and since that time has rarely been for long off the Canadian political stage. The central idea was simple and attractive. Here were two neighbours, speaking the same tongue and enjoying

much personal, social, and commercial intercourse. Was it not therefore common sense and neighbourliness that in framing their commercial policy they should be more friendly to each other than they were toward distant foreigners ?

But reciprocity was a bargain, and each party must get some benefit from it. What had Canada to offer, and what did she want in return ? She offered two things. The first was an abundance of fish in Canadian coastal waters. By international law United States fishermen could not fish within three miles of the Canadian coast, for that three-mile strip of water belonged to the country owning the coast. But by 1850 the United States coastal waters had been almost emptied of fish, and Canada's rich fisheries tempted the fleets from the south. Canada could therefore say, "We will let you come and catch our fish if you will do something for us in return."

The second bait was the St. Lawrence route, with its opportunities for cheap water carriage. The canals and the whole of the Gulf were inside the Canadian frontier, and Montreal still believed that, if adequate inducement was offered, a large stream of trade would at last come from the Middle West. Montreal had been making improvements in its harbour facilities. In the twenties ships had anchored on the margin of the river ; there were no wharves, and the "ragged and muddy haven" was fringed by the "clayey and generally filthy bank of the city." But thirty years had witnessed a great change. A United States report in the fifties said the limestone quays of Montreal were unsurpassed by those of any city in America ; the long string of docks and wharves stretching eastward from the

Lachine Canal presented "for several miles a display of continuous masonry which has few parallels."

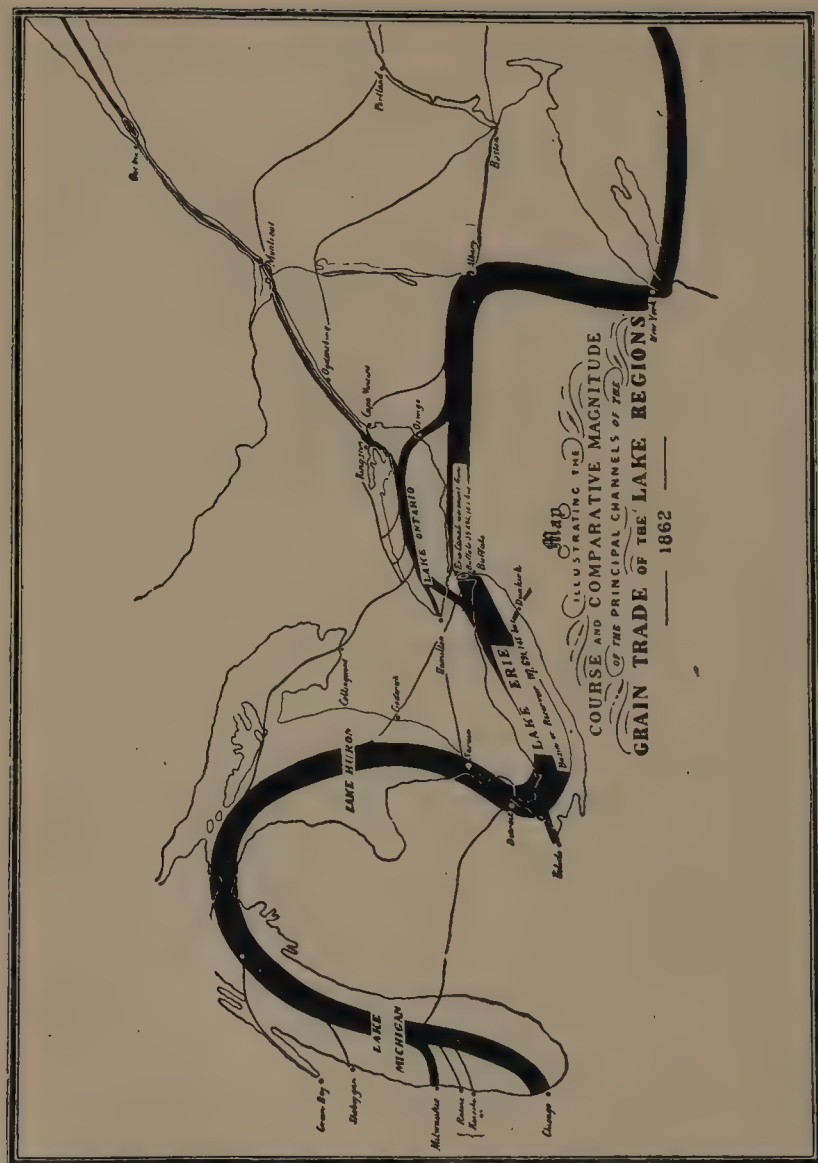
To these wharves an occasional ocean steamer came, but most of the Atlantic trade was carried on in sailing vessels. In 1856, however, the Montreal Ocean Steamship Co. put four iron steamers on the run to Liverpool, and soon a regular weekly service was in operation. From Quebec to Liverpool was an average journey of less than eleven days, which was about one-third the time taken by the old sailing vessels, and two days less than the run at that period between New York and Liverpool. Here was another proof that the best way from the centre of the Continent to Europe lay down the St. Lawrence, and that the United States would benefit immensely if Canada gave her easier terms for the use of that route.

What did Canada expect in return ? (1) More traffic down the St. Lawrence, and therefore more revenue in tolls and more trade for Montreal. (2) Easier access to the United States market. The Canadian wheat farmer especially wished to get his grain over the southern border, since the British market had been so uncertain and was now open to all his rivals on equal terms. But the two countries produced the same kind of primary products, and in the forties each of them had put duties on imports from the other. Canada in 1843 levied 75 cents a quarter on American wheat ; in 1848 the United States imposed a duty of two dollars a quarter on Canadian wheat and raised the tariff on lumber. These blows, coming on top of those from the British free traders, seemed to spell complete disaster ; something must be done,

So there was begun a series of prolonged and ex-

asperating negotiations between the two governments. There were "pilgrimages to Washington," there was angry talk of retaliation when the United States seemed languid or hostile, but finally a Reciprocity Treaty was signed in 1854. The Treaty dealt with three topics : (1) United States fishermen could fish in Canadian waters and come ashore to dry their nets or cure their catch. Canadian fishermen in return could go down the American coast as far as latitude 36° N., but as there were few fish down there, Canada gained little, the United States much. (2) Canada granted the use of the St. Lawrence and the canals to American vessels on the same terms as were charged to Canadian vessels ; in return, Canadian vessels were free to use Lake Michigan. (3) A large number of goods, including nearly all the products of the farm, forest, mine, or sea, were placed on the "free list," and could be sent by either country to the other duty-free. The Treaty was to remain in force for ten years and could then be terminated by either party.

Reciprocity came ; so did prosperity, and in some measure the first was the cause of the second. The Maritimes benefited most, for New England was now an open market for their coal, lumber, and fish. At many points along the international boundary farm and forest products passed across as if no border existed, and people bought and sold where they could gain the greatest advantage. Canadians turned to American tobacco in place of the local product, and the cultivation of tobacco leaf was almost abandoned in Ontario. Canadian farmers expanded their production of barley for the breweries of the United States and of wool for the Massachusetts mills. Canada also took advantage



Grain trade of the Lake regions.

of the "free bonding" facilities established in 1846, by which goods going to or from Canada could pass through the United States in bond, that is, without paying any duty. Toronto profited largely by this growth of trade with and through the northern states, and the Welland Canal was used much by American boats. But the attempt to bring the trade of the Middle West down the St. Lawrence failed almost entirely (as the map on page 312 shows). Even the abolition of all tolls on the canals failed to bring the desired result.

But prosperity was due to other factors as well. The Crimean War (1854-56) kept Russian supplies of wheat and timber out of Western Europe, and gave North American producers a good market at high prices. Further, both Canada and the United States were busy building railways; consequently, much money was spent, and big demands grew up for food for labourers and horses, structural materials, and certain manufactured goods. Then, during the Civil War, America bought so much Canadian produce that for a time Canada exported southward more than she imported from her neighbour.

In 1866 the United States terminated the reciprocity agreement, partly because some Americans said that Canada was getting more benefit than they were, partly because some Canadian tariff increases were said to be against the spirit of the treaty, partly because it was thought by some that Canada would plead for annexation if reciprocity was withdrawn, partly because the American tariff had been raised to meet Civil War costs, and partly because the North was angry at the apparent sympathy of Great Britain with the Southern cause.

It was hard to let the American open market go, and vigorous but fruitless attempts were made to persuade Washington to change its mind. Canada therefore began to look increasingly inward rather than outward, and to seek salvation by protecting her industries in a market that now, thanks to Confederation, stretched, on the map, from the Atlantic to the Pacific.

Supplementary Reading.—See the list at the end of Chapter X.

CHAPTER IX

FROM CONFEDERATION TO THE AWAKENING OF THE WEST

Confederation and the Railways. The story of Confederation has many aspects—racial, political, strategic, and personal, as well as economic. The economic aspect was possibly the least important, but when the British preferences were lost, and later, when reciprocity was coming to an end, some people believed that compensation would be secured if all the provinces were made into one free trade market, and if commerce between the Maritimes and the inland provinces was thereby fostered. On the other hand, some people, especially in the Maritimes, opposed Confederation because they saw little advantage to be gained in markets that were so far away. For they were still far away as the crow flies, and farther away as human beings had to travel. The sea journey from Halifax to Quebec was so long, and was so blocked by ice in winter, that no adequate shipping service had been established; the *Royal William*, which had been built in 1831 for that route, had not paid its way and had to be sold when it was less than two years old to satisfy a mortgage. The long land trip, if taken through Canadian territory, was so roundabout and through such inhospitable country that it did not seem worth while to make a

road or build a railway. In 1850 the quickest way from Montreal to Nova Scotia was still through Portland, Maine.

But if Confederation came largely through the pressure of political and international difficulties, many economic bargains had to be made before union was accepted as desirable. Those bargains chiefly concerned railroads, so let us turn to the development of the Canadian railroad system.

Many motives influenced the construction of railroads in Canada. (1) The coal-mining company in Nova Scotia copied British examples in laying tracks between its pit-heads and the wharves, and gave Canada its first railroad. But Montreal thought of railways as an alternative to canals in solving the problem of portage. Hence some early lines were portage railroads. (2) The railway offered an escape from the ice-bound St. Lawrence. If Montreal could get access to an ice-free port, whether in the Maritimes or in the United States, she would not have to shut down her foreign trade during the winter months. (3) A railroad would give better winter and summer communication with the interior, link up Toronto and Montreal, and thus put Montreal at a smaller disadvantage in its competition with the United States for the carrying trade between Upper Canada and the coast. (4) Railroads would open up settlement in districts which had no good water communications; they were an indispensable prelude to the development of the prairies. (5) A transcontinental line would be a vital link in the "all-red route" between Britain and the Orient or Antipodes; the old dream of a north-west passage to India and China could at last come

true. (6) Railroad union alone could make the political union achieved in 1867 a fact. (7) The rebellion in 1837 and the fear of invasion during the Civil War emphasized the need for facilities for the quick movement of troops and supplies. (8) The progress of settlement and production in the United States, and the "pull" exerted on Canadian people and produce by the American railroads after 1840, compelled Canadians once more to realize that they must do as their neighbours were doing or be left hopelessly behind in the development of their resources and trade.

Once Canada began to feel the need for railroads, the question arose, "Where is the money to come from?" Some people favoured leaving construction and ownership to private enterprise, as in England, and some lines were built on that basis. But except where a large and profitable trade was assured, capitalists were unwilling to take all the cost and risk on their own shoulders; a line in a new country was much less likely to give an adequate return to capital than one built to serve existing centres of population. Besides, there was often a big difference between the estimated and the actual cost of making a railroad, and frequently companies exhausted their funds long before the track was ready for use. Some public men urged government construction and ownership; let the state borrow the money and build the line itself, and perhaps the British Government would give a subsidy if the track had a military value. But Canada did not adopt this proposal. Instead, she gave aid to companies. Sometimes the aid came from the Dominion Government, sometimes from the provincial authorities, and at times municipalities added their mite if they thought

a railroad would bring prosperity to their community.

The first railroad, apart from that at the Nova Scotia mines, was essentially a portage line. The chief trade route from Montreal to New England was along the Richelieu River and Lake Champlain, but it was broken by the rapids at Chambly. In the late 18th century there were proposals for a canal round these rapids, but after 1820 the case for a railway was urged by many people in Montreal. Eventually a company was formed, and in 1831 was given power to build the line. One locomotive, weighing only six tons, four passenger coaches, and ten freight cars were ordered from England, and in 1836 the first train made the journey of sixteen miles from La Prairie, on the south bank of the St. Lawrence, to St. John's on the Richelieu, in an hour. On that festive occasion the engine pulled two coaches, containing the Governor and the chief guests; each of the remaining cars was hauled by a team of horses, and for a while most of the traffic was pulled by horses, on wood rails topped with strap iron.

During the thirties and forties many other lines were planned, but few were actually built. In the Maritimes the need for a line connecting Halifax and Quebec was generally admitted, for military purposes if nothing else; but disputes about the route, along with the failure of the British Government to give a subsidy, prevented anything from being done. From Montreal a short line was opened in 1847 to Lachine; here a steam ferry took engine and coaches across the river, and from the south side connection was soon made with lines that ran up to the border

from the south or west. The proprietors of this land and river route were very proud of their "unequalled steam ferry," the speed and comfort of travel on the iron rails they had used, and the freedom from dust on a track ballasted with heavy gravel. In Upper Canada seventeen lines were planned between 1832 and 1850, but only one of them was actually constructed.



The Champlain and St. Lawrence Railroad, one of the first in Canada, 1837.

This one, the Queenston and Chippawa, was opened in 1839; it was only ten miles long—and used horses instead of engines. At the Sault Ste. Marie a portage tramway was finished in 1850 on which horses pulled trucks round the rapids. All told, Canada had in 1850 only sixty-six miles of railway; the United States had ten thousand.

The Grand Trunk. But 1850 was the turning point, and

by Confederation there were over two thousand miles of railroad in use. The Maritimes now had some local services, tracks reached out from the St. Lawrence toward the ice-free ports of the south, a ribbon of rail ran from below Quebec through to Lake Huron, while most settled districts in Ontario were near some trunk or branch track.

The giant of this first railroad boom was the Grand Trunk Railway, which, by building some lines and absorbing or leasing others, had become in 1860 the largest single railroad unit in the world. In 1853 it connected Montreal with the ice-free port of Portland, Maine; in 1856 it ran trains between Montreal and Toronto, and two years later its western terminus had been extended to Sarnia. The Victoria Bridge across the St. Lawrence at Montreal was finished in 1859, and by 1860 the Grand Trunk had 1,100 miles of track stretching from Portland and Rivière du Loup, east of Quebec, to Sarnia.

From this trunk road other companies built spur lines to Ottawa, Peterborough, Lindsay, and Collingwood; but these were eventually absorbed by the Grand Trunk, as were also lines running from Montreal to the United States border. Thus the Grand Trunk bestrode the settled areas of Quebec and Ontario, and by 1870 its western terminus was in Detroit. It did not precede settlement to any great extent, as did the C.P.R. later on; there was already population and traffic in the regions to which it went, and it thus escaped many of the difficulties and the long wait for traffic and revenue that most pioneer lines had to contend with. In 1870 it was replacing iron rails with steel ones, running "Pullman's Palatial Sleeping Palaces" on its night

trains and "Palace Drawing-rooms" on its day trains. The system of "checking" baggage was already in vogue. The high hopes of colossal profits held by the promoters of the line were not realized, and the still higher hopes that the railroad would bring Upper Canadian and mid-western produce to Montreal were as unfulfilled as had been those based on the canals. But it had helped to change the whole character of transportation along the St. Lawrence and Lake settlements; the days of stage-coaches, of weary journeys on corduroy roads, and of long, cold sleigh-drives were ended; travel between Upper and Lower Canada became easy, and the whole commercial life of the country began to move more quickly.

The Intercolonial. With Confederation the railroad story opens a new chapter—that of linking up the extremities with the centre. The Maritimes demanded rail connection with Quebec as part of the price of their entry into the federal union, and one of the first tasks after Confederation was to satisfy them. The line was built by the Dominion Government; Sandford Fleming was the engineer in charge, and the route began at Rivière du Loup, the eastern terminus of the Grand Trunk. From that point it ran as far away from the Maine frontier as possible to Bay Chaleur, and so to Moncton, Saint John, Truro, and Halifax. When completed in 1876, it became, and has remained, an unprofitable property. For in its desire to keep away from the frontier it went along the two sides of a right-angled triangle instead of on the hypotenuse, and secured little local traffic on that long trail. The hypotenuse crossed a large patch of Maine, and so was

out of the question as a route for a government line. Canada, in its Intercolonial, had to make the best of a bad job and a bad frontier line.

The second railroad product of Confederation was a transcontinental line. British Columbia had demanded a wagon road, and got a railroad. But such a line would be useful in opening up the little-known prairie region, and to this task many Canadians had been giving thought since at least 1850. We must therefore now see what had been happening in the west before 1867.

The Canadian West

The Fur Trade. Beyond the edge of farming settlement lay a vast wilderness, inhabited in some parts by fur-bearing animals, and by the natives who trapped them. To these regions the white man went to barter goods for pelts. He could go by various routes: from the Bay; from Montreal up the St. Lawrence (or Ottawa) and the Lakes; from New York, Albany, or Philadelphia to the Lakes; up the Mississippi; or up some valley from the Pacific coast. The Hudson's Bay Company traders had established a monopoly over their area by ousting the French; but rivalry was keen between the Montrealers and the traders from farther south. In 1763 the French were displaced by the British traders who swarmed into Montreal, and these men set out to win for themselves the whole western fur region. They grouped themselves together in the North West Company in 1783. But the drawing of the international boundary and the final transfer of territory to the United States deprived them of a rich fur region and drove them north, where they had to wage a fierce battle with the Hudson's Bay

Company. In 1821 the two companies joined hands, or rather the older one absorbed the younger. Henceforth furs left the country through Bay ports, and an ancient trade deserted Montreal.

Of the two rivals the North West Company was the more energetic, especially in dealing with a characteristically Canadian problem—that of transporting goods long distances. According to a description written in 1784, there were over ninety portages between Montreal and the Lake of the Woods. The most famous of them was the Grand Portage, which went from Lake Superior to the chain of rivers and lakes leading to the Lake of the Woods ; it was ten miles long, and the task of getting the annual load of goods and provisions across it took over a fortnight. The Company at that time employed over five hundred men ; half of them were stationed in the fur region, half were occupied in transporting goods from Montreal to the Grand Portage by way of the Ottawa and Lake Huron. The latter set out early in May in canoes of about four tons burden, navigated by eight or ten men. At Michilimackinac (situated between Lakes Huron and Michigan) they took on a new stock of provisions, to carry them to the end of their journey and also to supply the men out west. By early July they had reached the Grand Portage, where they handed over the goods to the men who were to take them a thousand or more miles still farther, in canoes of one and a half tons burden, to the trading posts of the fur country. The big canoes then made their way back, carrying the furs brought to the Portage ; the men in the smaller canoes went west or north, getting food occasionally from natives as they passed, and hurrying to reach their

winter quarters before the snow came. Once in those quarters "they are at ease, and commonly in plenty, which only can reconcile them to that manner of life and make them forget their sufferings in their Annual Voyage to and from the Grand Portage."

Already, in 1784, the Company was considering whether Lake Huron might not be reached more easily up the St. Lawrence and overland from the Bay of Quinte, or "by the carrying place of Toronto"; it was talking about providing sets of rollers on which canoes could more easily be taken over portages, and was planning to put a vessel on Lake Superior in order to shorten the time taken to pass up and down that water. And one of its western traders, Alexander Mackenzie, was soon to make those historic trips which led him to the Arctic (1789) and the Pacific (1793).

Fifteen years before Mackenzie saw the Pacific, Captain Cook had discovered Vancouver Island (1778), and the furs his crew took home showed that valuable skins could be collected west of the Rockies as well as east of them. During the next fifty years, therefore, the Pacific coast and valleys became the hunting-ground of rival trading groups of many nationalities. Each group established its posts at favourable points, and tried to persuade the natives to trade with none but itself. Gradually things sorted themselves out; the Hudson's Bay Company established an outlet on the coast at Fort Vancouver in 1825; in 1818 the British and United States Governments agreed that the region should be free and open to the traders of both countries; the Russian claims to sovereignty over all the coast north of 51° were abandoned, and com-

parative peace descended for a while on this new fur region.

Early Western Settlements. One effect of the competition between the rival traders had been the establishment of many new outposts. The Hudson's Bay Company at first had been content to set up a few forts at the mouths of rivers flowing into the Bay, to which it expected the Indians to come with their pelts; but when the French, and then the Nor'Westers, went out into the natives' country the Company had to do likewise. Hence by 1830 there were about 150 establishments between the Bay and the Pacific, linked together by a veritable network of trading routes. At the posts, trade was almost entirely by barter; Montreal or London sent out supplies, including food and such trade goods as mirrors, blankets, guns, beads, and rum, and got back furs. But since no company could hope to send all the food needed by its agents, the posts were encouraged to catch or produce for themselves whatever they could. Nay, more, a few settlers were induced to make their home at some of the more important centres, as for instance at Fort Vancouver, where French-Canadian servants of the Company were settled after 1825, and on the Red River, where Selkirk's colony of Scots and Swiss had been "thrice planted and twice uprooted." At almost every post small-scale farming was begun, and the yield showed that the country was fertile enough for real settlement.

East of the Rockies settler and trader alike could easily obtain one kind of food. Bison were incredibly numerous; in early summer the herds moved north

up the prairies, and in late fall went back south, in a broad, black, living torrent. The Indians, and then the Red River settlers, organized great hunts, which at times killed as many as two thousand animals in a single day. The hides were used as rugs or blankets, and during the Crimean War twenty thousand buffalo robes were sent to keep the British troops warm. The flesh was used for meat or for making pemmican. Pemmican was almost as important a factor in the fur trade as was the canoe. It was made by slicing, drying, and pounding lean meat into a flaky mass ; fat was then melted and poured over the meat, and the mixture packed into a bag of buffalo hide. This concentrated food had many virtues as a ration ; it was exceptionally high in food value, it kept indefinitely, and need not be cooked. It was therefore invaluable to the hunter, trapper, or any other kind of traveller, for a ninety-pound bag would feed a man about sixty days. . .

At the London Exhibition of 1851 the Company showed hundreds of different animals in whose furs it dealt. The most common skins were those of the beaver and muskrat. The beaver pelt was one of the staple materials used by the hat-maker in the 18th and early 19th centuries. It consisted of two kinds of hair ; one was long, stiff, and glossy, the other short, thick-set, and soft. The former was pulled out and used for upholstery, the latter was shaved off and made into felt by processes which were described in 1756 as "ingenious, but very dirty." A beaver hat was the 18th century gentleman's normal headwear, but it must have been very heavy and thick, for in 1800 about eight ounces of fur went into each hat. Improved methods of manufacture gradually reduced the

amount of fur required, and the price of the finished article fell; more people therefore wore hats instead of caps, and the demand for fur was stimulated. Meanwhile the high-grade furs found in the far north were wanted by the rich, and when ways were found of dyeing cheaper pelts to make them look like sable or something else than what they were, the wearing of fur winter coverings or trimmings spread among the less wealthy sections of the European population. So the products of the little-known northern areas went to London, the great fur market of the 19th century, and then passed through the Company's auction room to almost every part of Western Europe.

The Company did its work well, kept comparative peace in its wide domain, and treated the Indians with a measure of fairness rare in relations between whites and natives. But it stuck grimly to its privileges, prevented the few settlers under its rule from trading with outsiders, frowned on all settlement except such as was necessary to handle its trade or supply the wants of its traders, and refuted strongly the suggestion that Rupert's Land and beyond could be used as anything but a fur country. This attitude was natural, for "the fur trade and the Company's monopoly were irrevocably opposed to settlement" (Innis). If the settler came the fur-bearing animals and the bison would soon disappear. One Governor of the Company put the case forcibly when he said, "What! Sequester our very tap root! Take away the fertile lands where our buffaloes feed! Let in all kinds of people to squat and frighten away the fur-bearing animals they don't kill and hunt. Impossible!" The land from the Red River to the Rockies was painted as a "vast

desert, in some places without wood and water, exposed to the incursions of roving bands of Indians, and entirely destitute of any means of subsistence for emigrants." Telegraph lines would be destroyed by prairie fires or by the natives, settlers would be frozen to death, access to markets would be impossible, and so on.

Unlocking the West. But the pressure of events and ideas was against the Company. The British Government was growing alive to the possibility of settlement on both sides of the Rockies. In the United States settlers were following in the tracks of the fur-trader up into Oregon in the early forties, and into Minnesota a decade later. Gold discoveries in British Columbia followed those in California and deposited a new layer of population on the Pacific coast. It was felt by many that if the Company had fostered settlement on the western coast the international boundary would have been drawn far south of 49° in 1846 ; the United States got the territory because her people had settled it while the Company had done nothing. Was something like this to happen again east of the mountains ? The Red River settlement was growing up ; in 1849 it wrested from the Company freedom to trade in furs and other produce, and as the easiest trade route ran southward to Minnesota there was some danger that commercial connection might lead to political union. In fact, many settlers urged that such union with the United States was the sovereign remedy for political and economic grievances ; but there were some voices raised to plead the advantages of union with the Canadian provinces in the east.

Finally, the East was awakening to the problem of the West. Evidence was accumulating to show that the region was not a useless wilderness; a few enthusiasts were talking of a road, a railway, or a telegraph wire from Halifax to the Pacific, and those who watched the steady westward march of settlement in the neighbouring country were saying, "The United States is expanding westward; why can't we?" All such talk came inevitably round to asking uncomfortable questions about the Company's monopoly and policy. Is it common sense, said one writer, "to expect that the task of civilizing and settling a country should be entrusted to those whose obvious interest it is to keep it wild and uncultivated?" "It is unpardonable," said George Brown in his *Toronto Globe*, "that civilization should be excluded from half a continent . . . for the benefit of 232 shareholders."

The Company lost its power in two stages. In 1856-59 a Parliament was established on Vancouver Island and British Columbia was made a separate colony. The Company was deprived of its ownership of Vancouver Island and of its trade monopoly, except in the Rupert's Land it had been granted in 1670. In 1869 the Company transferred all its claims to the Dominion. It retained the right to trade, but its monopoly vanished; it kept large areas of land round its posts, got \$1,500,000 in cash, and gained the right to claim, during the next fifty years, one-twentieth of any districts or townships opened for settlement in the fertile belt of the North-West.

The way at last was open for the settler, the railroad, and self-government. But twenty years had to elapse before the prairies showed signs of coming into their

own. Before looking at the later history of the West, let us see what was happening in the East during those twenty years.

**Eastern
Canada after
Confederation**

The quarter-century following Confederation saw the older provinces make some progress, undergo some marked changes, and feel the effects of alternating booms and depressions.

Canada's dependence on the British and United States markets was as great then as now, for in 1868 over one-third her total exports went to Great Britain and just over half to the United States. Hence her prosperity depended largely on that of these two countries, and on the policy they adopted towards her. When Great Britain was depressed in 1866-67, Canada felt the effect in diminished markets and the lack of capital for her public works, while the disappearance of reciprocity with the United States left her bewildered as to how trade would now fare. But Britain soon recovered, and the United States had a railroad-building boom, culminating in the first transcontinental and other lines west of the Mississippi. Hence Canada wallowed in prosperity from 1869 to 1873; the length of railroad mileage doubled during those years, banking business nearly doubled, exports increased by one-half, trade with the Maritimes became more important, and exports to the United States increased 40 per cent in spite of the loss of reciprocity. Confederation seemed a highway to prosperity, and population approached the four million mark.

The National Policy. The inevitable crash came in

1873—partly from Europe, but chiefly from the United States—with the collapse of the railroad boom. This depression affected agriculture and manufactures alike ; it lasted till nearly 1880, and left its mark on the tariff policy of the country, for it was largely responsible for the adoption of the “National Policy” by the Dominion Parliament. Manufacturers gathered together to consider how they could defend their common interests, and set up organizations which eventually (1887) became the Canadian Manufacturers’ Association of to-day. These organizations soon decided that only a protective tariff could safeguard and foster Canadian industries ; so they set out to convert the public and the politicians to high protection. A few years before such a campaign would have met with almost universal opposition and scorn, and a deputation of manufacturers that waited on the government at Ottawa was said to have been told that the only way out of its difficulties was “to work harder and eat less.” But when depression lay year after year like a dark cloud over the Dominion, the manufacturers’ propaganda helped to win the day for Macdonald in 1878, and pave the way for a big increase and extension of the tariff in 1879.

Canada adopted the view that “only a higher tariff could open the factories and close the soup kitchens” ; the farmers were almost as strong protectionists as the manufacturers, though they would have preferred free access to the United States markets, and took the tariff as a second best ; the Dominion treasury needed more money, and a higher tariff seemed an easy way of getting it, while throughout the country many who were not directly interested in agriculture or industry

supported the National Policy because it was national. They wanted to see Canada strong, self-reliant, self-sufficing, and not merely a collection of axe-men, farmers, and customers for non-Canadian manufacturers. They wished to keep Canadians from drifting across the border. Or they wanted to retaliate on the United States for its repudiation of reciprocity; "Reciprocity of trade or reciprocity of tariffs" was a popular cry in the 1878 election.

In the new tariff the manufacturers got almost all they had asked for, namely, duties ranging from 25 to 35 per cent on textiles, clothing, boots, or ordinary domestic equipment for which the demand was as large as the population. The farmer secured additional protection for his crops and live stock, and Nova Scotia was sheltered by a duty of 50 cents a ton on imported coal. Some encouragement was given to the manufacture of pig iron, and high duties were imposed to shield the makers of iron and steel products, especially agricultural implements. No one seemed to be forgotten.

In later years slight alterations were made in the 1879 rates, and in 1883 the practice was begun of giving bounties on pig iron made in the Dominion. When the long Conservative rule at Ottawa ended in 1896, the National Policy did not end, for although the Liberal Party in opposition had denounced tariffs and bounties, and had stood on a Free Trade platform, it made no substantial alteration in the fiscal policy of the country except to introduce a system of preferential concessions to British goods. In substance, therefore, the policy initiated in 1879 has stood ever since.

The passing of the new tariff was followed by a rapid

recovery of business, and prosperity reigned till 1883. Was the prosperity due to the tariff? It is always difficult to trace cause and effect in such matters; but it seems clear that the higher tariff did give a valuable stimulus to some industries, especially the textile and clothing trades, and the making of cotton piece goods eventually became a fairly large industry. Makers of agricultural implements, musical instruments, and furniture benefited, as did also the grain-grower and miller. Other factors helped to bring prosperity. The C.P.R. was being built, immigrants were coming into the country at the rate of 100,000 a year, and Canada's two best customers were flourishing.

The good times were short, and after 1883 came another long weary depression. Manufactures and agriculture made progress, but growth in the volume of production was partly counteracted by the decline in prices that took place all over the world during the eighties. Wheat, which had rarely sold in London before 1874 at less than \$1.70 a bushel, sank to below 70 cents. Under such circumstances it was too much to expect that there would be any great expansion on the prairies or anywhere else.

The Period of Gloom. The stagnation of the eighties and early nineties is well shown in the slow growth of population and the decline in the volume of immigration. Between 1881 and 1891 the population increased only 500,000, which was less than that of any previous decade since 1850. Many immigrants returned home or went to the United States, and in addition many Canadian-born people left their native land for the south. In 1890 there were almost a million Canadian-

born folk living in the United States, and the number was 260,000 greater than it had been in 1880. This exodus had, of course, been going on for a long time ; but in view of the strenuous efforts to safeguard Canada for the Canadians the leakage began to look like a first-class national disaster.

The depressions of the seventies and eighties were a testing time for the older parts of Canada, and under that test the rural life of Ontario and Quebec underwent many changes. Grain-growing became less important, and diversified farming more common ; less was thought of crops, more of animal products. Butter and cheese factories were built after 1880, and dairy machinery was improved. The skim milk from the dairy was fed to hogs, a big production of bacon was developed, while corn was stored more systematically and fed to stock. Refrigerated cars and ships appeared, cattle boats were built, and an export trade in live stock, and meat developed, some of the cattle coming from as far west as the foothills of the Rockies over the new C.P.R. track. Refrigeration opened a foreign market for fruit and helped to foster the orchard industry, especially in the Niagara area, British Columbia, and the Maritimes. The weight of provisions (meat, butter, cheese, and eggs) exported trebled between 1874 and 1896, but because of the fall in prices the value only just more than doubled. The amount of cheese sent abroad grew sevenfold during that period, and a slice of Canadian cheese became a regular part of the British working-man's meal, especially at Christmas-time.

In his struggle against adverse conditions and low prices, the farmer was compelled to take a more scientific view of his work. Crude, happy-go-lucky methods,

which had been satisfactory while prices were good or the soil held its original richness, had now to be abandoned ; rules of thumb must be replaced by rules of the book, and every effort made to reduce costs of production, raise the quality and quantity of the product, and get better marketing methods. In making these efforts the farmer was helped by the governments, for they now began to regard agricultural research and education as two of their functions. In 1874 the Ontario Government established the agricultural college at Guelph ; and in 1886 the Dominion Government provided for the establishment of the experimental farm at Ottawa, with similar farms in the provinces ; at first there were five of them, but to-day there are over thirty.

After 1896 prices began to recover, and the expansion of the West brought an era of prosperity to the whole country. To that period we can now turn and leave the gloom of the eighties behind.

Supplementary Reading.—See the list at the end of Chapter X.

CHAPTER X

CANADA'S GROWING TIME

Growth of Western Canada

WHEN the Dominion took charge of the West, Winnipeg had a population of about two hundred. The whole Red River settlement had grown to about ten thousand souls, most of them Indians or half-breeds, and there were at most seventy thousand people dwelling between Ontario and British Columbia. Twenty years later the number had risen to only 250,000, but by 1911 it had shot up to 1,350,000, and by 1921 to nearly two million. Thus the growth at first was slow, and not till after 1891, or even the close of the century, did the great rush begin.

Free and Cheap Land. Two big factors contributed to the prairie boom. The first was free or cheap land. "We intend to be liberal both in money and land, as it is of importance to settle that country at once." So said Sir John Macdonald in 1872, and the liberality had to be at least as lavish as that of the United States. Canada could not hope to compete successfully with her neighbour for immigrants—or even keep her own sons from emigrating—unless her land policy was at least as "liberal." At the same time, help must be

given to the railways which were needed to open up the North-West, help in money and in land ; and it was hoped that much of the money could be obtained by selling land. So the land policy was a mixture of giving and selling. (a) The free homestead system was copied (1872) from the United States, except that the homesteader became owner after three years' occupation instead of five. The land was not entirely free, for a \$10 fee had to be paid when the settler made his initial claim at the land office. (b) The Hudson's Bay Company received land under the agreement of 1869. (c) Railways were given large areas ; the initial gift to the C.P.R. was 25,000,000 acres, and up to 1896 other companies received similar but smaller grants. After that date the Dominion Government made no more land grants to railroads, but some of the provinces continued the practice, and, by 1912, 46,000,000 acres had been given to railroads.

Some land was sold by the government. (a) In 1874 the system of *pre-emption* was copied from the United States ; a homesteader could claim a second quarter-section, and if he occupied and improved it he became owner at the end of three years on payment of \$1 an acre. (b) Land was sold cheaply to individuals and to colonization companies. (c) Some " school lands " were sold by the government. In each township surveyed on the prairies, two sections out of the thirty-six were set aside for the endowment of education. They were to be sold by auction, and the money received was invested to provide an income for the maintenance of schools.

There were thus many kinds of land-owner to which the land-seeker could go. Homesteading attracted

the man without capital ; but the free lands were far from rail or road, and conditions might be so hard that, according to some wit, the homesteader bet the government \$10 against 160 acres of land that he could " stick it " for three years on his holding. The railroad, on the other hand, had areas to sell alongside its track ; it wanted to turn its land into money, and it needed settlers in order to have freight to carry. So it sold its lands on easy terms—a small deposit, low interest rates in the early years, and payment spread over ten, twenty, or thirty years. The man with little capital thus had a chance to get on to his feet before he had to make large payments ; his initial funds could go largely in purchasing equipment, and he had a railroad near by.

The C.P.R. That last consideration was perhaps most important of all, and was the second factor in making prairie settlement possible. In 1851 Howe made his famous prophecy that many in his audience would " live to hear the whistle of the steam engine in the passes of the Rocky Mountains, and to make the journey from Halifax to the Pacific in five or six days." Yet, ten years later, troops for the Red River had to be sent via Hudson Bay, and when Wolseley's expedition went in 1870 by the Lake Superior route to quell the Red River rising it had practically to make its own road as it progressed. If a vast expanse of dreary territory separated the Maritimes from Quebec, an even more forbidding area stretched between settled Ontario and the prairies. Till that area round the top of lakes Huron and Superior had been traversed by a railroad, the normal way from Toronto to Fort Garry

was through Detroit and Chicago to St. Paul ; then by stage across to the Red River, and so by boat to Fort Garry. Hence in 1870 the Red River people drew nearly three times as much of their imports from Pembina and the United States as they did from Canada and Britain. It was natural, therefore, that the first railroad to Winnipeg should come from the south, and in 1878 a railway was completed between St. Paul and Winnipeg.

Even before this date some Manitoba grain had found its way to outside markets, though it is difficult to discover exactly when the first shipment was made. One claim asserts that it was made in 1872 ; another record shows that a few hundred sacks of wheat went to England in 1874 ; while a third indicates that in 1876, during a serious failure of the spring wheat crop in Ontario, a Toronto seed merchant came and bought eight hundred bushels.

In 1880 the C.P.R. contract was signed. The government gave 25,000,000 acres of land, \$25,000,000, and fragments of line which had already been constructed. Further, it agreed that for twenty years it would not allow any rival line to be built south of the C.P.R. in the West. In return the C.P.R. was, within ten years, to build a line from Lake Nipissing to the Pacific, and presumably to develop new routes or use existing railroads from its eastern terminus to the Atlantic.

In 1885 the last spike was driven. As early as 1883 the line between Winnipeg and Lake Superior was finished and trains were running nearly nine hundred miles westward from Winnipeg. Connections with the east coast were soon made, and in 1888 a line from

Montreal to Saint John, N.B., was built by the direct route passing through Maine. On the prairie, construction was so easy that on more than one occasion six miles of track were laid in a day ; but through the rocky stretches between Nipissing and Fort William and the passes of the Rockies the obstacles were almost heart-breaking. At times the construction money ran out, and those in charge were in a financially tight corner, out of which there seemed to be no possible escape. But government aid, ingenious financing, and indomitable will finally overcame all obstacles, and on June 28, 1886, the first train left Montreal for Vancouver.

Although the main interest of the C.P.R. was the development of the prairies, the company took a very wide view of its functions and opportunities. In 1887 it started a steamship service from Vancouver to the Orient ; a little later it put ships on the Lakes, and in 1902 entered the North Atlantic shipping field. During the boom period after 1900 it expanded rapidly ; it established connections in the United States, built branch lines, erected hotels, ran a huge immigration and colonization department, irrigated arid areas in Alberta, scattered offices, agencies, and express service over Europe and the Orient, and thus won repute as the world's largest land and water transportation unit. Yet in the early eighties many people were convinced the line would not be able to pay for its axle grease, and the president of a large express company in the United States declined to extend his service to the C.P.R. because he was sure the railroad would soon go under the auctioneer's hammer at a sheriff's sale.

In spite of free land and a railroad, settlement of the

prairies was, for a while, very slow. Drought, frost, the second Kiel rebellion, the high cost of getting machinery on to the farm, the general depression and low prices, all hindered growth. Still, between 1881 and 1891 the population doubled, the wheat yield grew from one to eighteen million bushels, the Winnipeg Grain Exchange was established (1887), and ranching began.

The Rush to the Prairies. After 1896 the rush began. Prices began to recover in that year, and the export price of Canadian wheat rose from 58 cents in 1896 to 80 cents in 1904. Further, all the good land in the United States had now gone into private hands; the days of free homesteading were ending, and land could be bought only at comparatively high prices. At last the United States ceased to rivet the attention of the land-seeker, and the Canadian prairies got their chance.

They took it, and were helped to do so by the lavish publicity work of governments, railroad and colonization companies, and Atlantic shipping firms or their agents. Never before had a country so energetically drawn the attention of the outside world to the good things it had to offer. The United States was invaded first, and in 1897 advertisements appeared in thousands of newspapers, especially rural weeklies and farm journals; press men were taken on tours of the North-West, bonuses were given shipping and railroad agents for each immigrant secured, and the country was given a liberal education in the geography and resources of its neighbour. This process was then repeated after 1900 in the United Kingdom. Almost every paper one picked up in any part of that country announced that 160 acres of free land were waiting to be claimed in

Canada. Finally, in spite of the hostility of continental European governments, the good news was spread as far east as Russia. From 1901 to 1908 over five dollars was spent by governments in inviting each immigrant to come, or in regulating and helping him when he landed.

**Canada
in the 20th
Century**

The result of these efforts probably amazed those who made them, but amazement soon gave place to jubilation and to a strong confidence in the Dominion's future. The days of doubt and pessimism were gone, the drift of population to the south was forgotten. Canada's growing time had come at last; the 20th century was going to be Canada's century, just as the 19th had been that of the United States. The tide of immigration began to rise before 1901, and between 1901 and the outbreak of the European war in 1914 nearly three million people landed in Canada. At the height of the tide (1912-13), 402,000 came in a single year.

Not merely did immigrants come, bringing their worldly goods with them in quantities large enough to fill anything from a cloth bundle or hand-bag to a box car. Capital came also, in flood after flood, from the United States, Great Britain, and even France and Germany. It supplied loans to governments and local authorities, bought large blocks of land for speculative purposes, paid for the construction of more railroads, erected buildings in the cities, or scattered factories, mines, water-power installations, lighting plants, and street-car services over the old East or the new West. While it was being spent it added to the prosperity that was raging; it bought goods, paid wages, and

added to the country's productive or transport equipment—and to its bonded debt.

The influx of population and capital caused a "virtual recasting of Canada's industrial and commercial character," gave a greater variety and strength to its economic life, and lifted it "from comparative obscurity to a position of modest but real consequence in the field of international trade." We can study the transition under four headings, which between them cover the making of the Canada we know to-day. Those headings are : (1) The settlement of the prairies, the production and marketing of land products, especially of wheat. (2) The development of additional transportation systems to serve the new settler and link him up with the coasts. (3) The rapid industrial development and exploitation of mineral and forest resources. (4) The rapid growth of external trade.

Prairie Settlement

Most of the immigrant wave swept over to the prairies. About a million settlers came from the United States in the first fourteen years of the present century, and three-quarters of them were farmers, farm labourers, and their families. We can easily see why they came. Minnesota, North Dakota, and the neighbouring states were now filled up, and land which had originally been homesteaded or bought cheaply was worth anything from twenty dollars to sixty dollars an acre. The sons of farming families were grown up, but there was no cheap land near by on which they could be settled. So they were sent north, and often the family sold its whole homestead at, say, twenty-five dollars an acre, and migrated across the border, there

to obtain land free or for a few dollars an acre. Some Americans were escaping from dreary drought-stricken lands on which they had been trying in vain to make a living. One train which pulled into Winnipeg in 1891 bearing settlers from the Dakotas flaunted on the sides of its box-cars placards which read "No more two bushels per acre," "Free land," "Pure water," "No more five-mile water haul," "Hurrah for Canada." To some extent this "American invasion" was really a prodigal's return. A large part of the population of the Dakotas and Minnesota consisted of Canadian emigrants or their descendants, and in its publicity work Canada made special efforts to persuade these people to return, with no small measure of success.

The American influx reached its height in 1913, when nearly 140,000 settlers came in from the south. These American farmers often made the best settlers, for in addition to their experience in prairie farming, with its fight against drought and frost, they brought much capital, equipment, and stock; in 1909 alone, settlers from the south brought with them over \$60,000,000 in stock, cash, and effects. About half of them took homestead farms; the rest bought land, and as early as 1902 it was said that, "land agents are everywhere, buying land wholesale for individuals and companies. In St. Paul they are selling twenty thousand acres of Canadian land every day, retail, to investors and home-seekers. . . . One syndicate has just bought a block of over one million acres."

The second important source of prairie population was the eastern provinces of Canada. By 1914 almost every Ontario farmhouse had sent at least one son to the prairies; ten years earlier, men from Ontario

and Quebec had been taking one-sixth of the homestead blocks granted, and during the whole boom period about one-third the homestead entries were made by Canadians. For the rest, the prairie flood was composed of settlers and labourers from every part of Europe. Englishmen sometimes came in groups to found a colony; Doukhobors came from South Russia to plant communities in Saskatchewan and British Columbia; Icelanders settled on the shores of Lake Winnipeg, Galicians went north of Saskatoon, while the quarter-sections taken up by Scots, Irish, Scandinavians, Germans, Russians, and others formed a patchwork quilt of race distribution over the settled areas. But when a party of two hundred negroes from Oklahoma, bound for free homesteads west of Edmonton, passed through Winnipeg in 1911, there was protest throughout the West that racial quality was being sacrificed in the interests of quantity—or of immigration agents' bonuses.

Most of the settlers tried to get near existing or projected railways. At first this meant near the C.P.R., which was throwing out branch lines, pushing its sales of land, and developing a system of selling ready-made and fully equipped farms. "Providence, Incorporated" was the name given the C.P.R. by a Danish immigration agent, but there were many who felt that the prairies needed more than one providence. For, in wheat-growing country, a railway is little use to land more than twenty miles away. The C.P.R. lay toward the southern edge of the Canadian prairie, and, except where it threw out spur-lines, it left large areas of fertile land to the north untouched. A second line was built, and then a third, to connect the prairies with the two oceans,

and so boundless was the confidence of the period that a railroad magnate could say, in 1910, "When the third (transcontinental) is completed there will be lots of room for others." The two new lines facilitated settlement west-north-west of Winnipeg, running through Saskatoon, Battleford, and Edmonton, and gave a new Pacific outlet at Prince Rupert as well as an additional track to Vancouver. Thus the settled region became roughly an acute-angled triangle, with Edmonton and Calgary as the base points, and Winnipeg at the apex. Beyond Edmonton, to the north-west, lay the Peace River, which, according to the optimists, only needed rail communication to make it a second Saskatchewan.

Wheat. Over this settled triangle the main interest at first was in wheat. The prairie climate was suitable for the production of a hard grain, rich in the qualities desired for good flour and attractive-looking bread. Fortunately for the prairie, a revolution in the methods of making flour had made it possible to mill hard wheat effectively. In the old days grain was ground by being fed between two stones, one of which revolved on the other. But this method was suitable only for soft wheats, such as were generally grown in Eastern Canada; hard wheat was hard to grind. During the seventies, however, Minnesota millers wrestled with the problem, found a solution of their own, and then found a still better one which had been evolved in Hungary. The essence of this process was the passage of the grain through a series of iron or steel rollers; the first set of rollers broke the grain into small pieces, and each subsequent set ground it a little finer, so that

by a process of gradual reduction the whole of the flour was extracted. By this new method it was possible to mill prairie wheat economically; in fact one might almost say that the Hungarian process was as important a factor in settling the prairies as was the C.P.R.

Climate as well as railroads determined the area that could be settled. Parts of Southern Alberta and Saskatchewan were too liable to drought to be "safe" areas unless they were irrigated. The C.P.R. therefore spent \$15,000,000 in providing means for watering over two million acres. Thus land that had formerly "not been worth five cents an acre" for settlement was made valuable, though there was much failure as well as success in the results obtained. Elsewhere the crucial climatic fact was the short growing season. The farther north one went the greater was the danger that a late spring—or early fall—frost would ruin the settler's chance of getting a crop. Therefore the agriculturist had to seek for a seed-wheat that would combine the virtues needed for milling and baking with the merit of quick growth and early ripening.

In 1903, Dr. Charles Saunders planted a single grain of a new kind of wheat in an experimental plot at the Dominion farm in Ottawa. It was a cross-bred wheat, and one of its parents gave it good milling and baking qualities, while the other gave it the ability to mature quickly. Dr. Saunders christened it Marquis wheat, and found it so well adapted to the western climate that wheat-growing was made more safe over the whole belt, and the belt was widened northward. In 1924 about four-fifths of the wheat grown in Canada was Marquis; but in that year fifty farmers were testing a new wheat sent out from the Dominion farms. The new-comer was

wheat production was less than 24,000,000 bushels ; by 1910 it was over 110,000,000, and under the pressure of high prices and war demands rose to 340,000,000 in 1915. Bad seasons and labour shortage cut it in half in 1918, but post-war yields rose rapidly, and by 1928 a "normal" crop meant at least 400,000,000 bushels. The tractor, the combined harvester-thresher, and other machines increased the acreage, reduced production costs, cut the amount of human labour required to seed, harvest, and thresh an acre of wheat down to two hours, and largely did away with the need for an army of migratory harvest labourers and threshing outfits. But wheat-growing was more unstable on the prairies than it had been in Ontario or New France : disease or bad weather might cut the crop down by more than a third, and wide fluctuations in price spelled rejoicing or ruin to a region that had most of its eggs in one basket. Hence the prairies felt the full brunt of bad weather and low prices during the nineteen-thirties. In that decade Canada's wheat crop varied between 440,000,000 and 180,000,000 bushels ; and while the bumper crop of 1928 was worth \$450,000,000, the short crop of 1937 was worth less than \$140,000,000.

Diversified Farming. While wheat was, and is, the great exportable staple, some parts of the prairies gradually turned to other products. Land became exhausted by continuous cropping, and some parts of South-west Manitoba, where once a thirty-bushel crop was not uncommon, were at times abandoned because they had been "farmed out." Further, during the war and immediately afterward, when wheat was selling at times for over two dollars and a half a bushel,

farmers gladly bought more land at very high prices in order to extend their holdings. But when, in 1920, wheat dropped to one dollar a bushel or even less, the prairie-dweller, like his companions in every other grain area, became seriously embarrassed, and profound gloom and financial chaos prevailed. Was it wise to use his lands only to supply a market in which prices were so erratic? Could he put his acres to any better use? Could he free himself from his old dependence on Winnipeg, Chicago, or Liverpool? Ought he to turn to diversified farming?

Even before 1914 many farmers in Manitoba and Alberta had overthrown the monopoly of wheat, had given attention to oats and other crops, had bought beef cattle, or turned to dairy work. But in 1912 Winnipeg could not get enough butter, eggs, or vegetables from Manitoba to meet all its needs, and the scarcity of labour, along with the unpleasantness of outdoor chores in sub-zero temperatures, tended to keep prairie farming a summer pursuit. After 1920, however, mixed farming became much less unpopular; by 1925, three bushels of coarse grain (oats, rye, and barley) were produced in Manitoba for every bushel of wheat, while in Saskatchewan and Alberta the output of coarse grains was nearly equal to that of wheat; the three prairie provinces had almost as many milch cows as had Ontario, and their output of butter was four-fifths that of the older province. The farmer was learning to use his land for twelve months in the year, instead of only for four or five. If he felt disposed to forget it, he was forcibly taught it again by the crash of wheat prices after 1929. Hence, in 1935, the prairie provinces produced more eggs than did Ontario, and

almost as much butter. But some parts of the prairies are unfit for dairy farming, and the advice, "Turn to mixed farming" cannot always be followed.

Marketing Grain. Another prairie problem was that of marketing the increasing volume of grain. This problem had two aspects: (a) storage and transport, and (b) the actual sale. By the time the prairies were settled, wheat was being handled in bulk, not in bags; "Yankee ingenuity" had devised the elevator to take advantage of the fact that grain would flow downhill, and transportation was carried on in big box-cars or in the holds of vessels. The grain grown by Farmer Brown was not kept separate from that of Farmers Smith, Mactavish, O'Leary, and Robinovich; it lost its identity in an ocean of wheat, and all that Brown knew was that he was entitled to payment for so many bushels of grain of a certain grade. The chief thing interesting him was the price he got for his bushels, and at times he felt he was not getting enough, but was being robbed by the long series of middlemen—elevator owners, railroads, steamships, banks, grain dealers, commission men, exporters, etc.—who stood between him and the consumer.

The railroad, the elevator, and the grain exchange were nearest to him, so they seemed to be his greatest exploiters. The C.P.R., when it ran its track on to the wheat belt, did not erect elevators itself, but encouraged others to do so by offering free sites and by promising that it would not load grain except out of elevators; it would not, for instance, let a farmer, or group of farmers, have a car into which they could load their own grain out of their carts. This promise and offer

caused many elevators to be built, and often the owner was a dealer in grain as well. The farmer was compelled to patronize the elevator, and often in practice to sell his grain to its owner, at the owner's price and grading; he, therefore, might complain that the elevator clerk had "docked" an excessive percentage off the total weight delivered, on account of the foreign matter and dirt the grain was estimated to contain; and he might also grumble because he thought his wheat had been graded too low.

Dissatisfaction therefore grew keen and widespread among the farmers, and the Dominion Government was asked to regulate the grain trade. The Manitoba Grain Act of 1900, amended various times in later years, brought the trade under strict control. Grain dealers were compelled to secure a licence before they could carry on their occupation, railway companies were ordered to provide cars where a sufficient number of farmers asked for them, elaborate provisions were made for fair and thorough grading, and a Board of Grain Commissioners was set up to supervise the trade and deal with complaints.

Co-operation and Pools. In this way some of the old grievances gradually disappeared. But the more serious ones remained; the farmer still had to sell through a middleman or to a middleman, and use elevators which belonged to others, paying charges which he thought excessive. The remedy seemed to lie in getting control of elevators and of sale. But how? One proposal was that the government should erect and own elevators. Manitoba decided to do this in 1910, but the experiment was a failure. At the same time the Dominion Govern-

ment built large terminal elevators at Port Arthur and elsewhere. But the more important proposal was that the farmers should co-operate, raise capital, and establish their own selling and storing services. Two co-operative companies, the United Grain Growers and the Saskatchewan Co-operative Elevator Co., were set up. The former began its work in Manitoba in 1906 ; its shareholders were all farmers, and its business was to sell their wheat for them on commission. Soon it went into the export business, leased a terminal elevator at Fort William, took over the local elevators from the Manitoba Government, and built new ones. The Saskatchewan company was formed in 1911, and by 1916 the two organizations were handling one-third of the prairie wheat crop. They were purely voluntary organizations, and the farmer was at liberty to join them or desert them as he wished, to sell his grain through their offices or through any outside dealer.

During the later stages of the war all the Canadian wheat exported was bought by the British Government and its allies, and until 1920 prices were very high. But when the price went below a dollar a bushel the problem of marketing once more became acute. The two co-operative companies still held their ground, but something more seemed to be needed. Eventually, what was known as a pool was established in each of the prairie provinces. The pool was a central selling agency, into whose hands all the members entrusted the selling of their grain. Farmers who joined the pool signed a contract that for five years they would hand all their wheat over to the pool, receiving in return a first payment of, say, 80 cents a bushel. The pool would sell the wheat when and where it thought

best ; when it had sufficient money in hand it would make a second and perhaps a third payment to the farmer, and when it wound up the year's work, and found what it had really got for all the wheat sold, it would then make a final payment of all it had received, less working expenses.

These pools began to operate in 1923 in Alberta, and in 1924 in the other two provinces. A central selling agency was established to deal with the produce in all three pools, and from 1924 to 1931 it handled about half the total crop on behalf of nearly 250,000 farmers. It obtained elevators, and was thus able to store the grain until the time seemed suitable for selling it. For a time all went well ; the price of wheat rose between 1923 and 1925, and was fairly steady till 1928, and it is easy to sell successfully on such a market. Then prices began to fall, slowly at first, but rapidly and tragically after 1929. One grade of wheat which sold for \$1.79 in July, 1929, was quoted at 39 cents in December, 1932. The pools could not sell their grain at the price they had advanced to the grower ; they went heavily into debt, the Dominion and Provincial Governments had to come to their aid, contract pooling broke down (1931), and eventually, in 1935, a national marketing agency, the Wheat Board, was set up by the Dominion Government, to receive and sell wheat for farmers who cared to use it, and to guarantee them a minimum price, originally fixed at 87½ cents. By that time wheat prices had risen, and the worst was over. But the whole experience showed how unstable wheat prices were, how severely wheat farmers might suffer, and how difficult "orderly marketing" can be when the market becomes disorderly.

The Rise of Towns. The growth of rural settlement caused a phenomenal growth of towns. Winnipeg trebled its population between 1901 and 1911; its position as the key to the West became stronger as new railroads were built, and its vast freightyards became one of the wonders of the world. Banks, wholesale houses, and department stores established branches, and by 1912 there were about three hundred manufacturing plants in the city. In six years over \$60,000,000 was spent in buildings alone, and skyscrapers towered up above the little gateway of what had once been Fort Garry.

Other western towns grew up almost overnight. Saskatoon in 1901 was a village of 113 people, but in 1912 it housed 12,000 inhabitants, had many imposing buildings, and scores of rich men—rich on paper from land speculation. Edmonton had been a conglomeration of shacks, a halting-place on the trail to Klondike, but by 1912 it had 25,000 inhabitants, stone buildings, paved streets, and boulevarded avenues; Calgary ceased to be merely a “cow town” and increased its population tenfold in a decade, while Regina bloomed from a township of 2,250 people in 1901 into a market, railroad centre, and provincial capital, with over 30,000 inhabitants, ten years later. Railroad divisional points, about 100–130 miles apart, became minor urban centres, while elevators, spaced eight to ten miles apart along the tracks, became the nuclei of little clusters of population. Everywhere in the towns there was growth, optimism, speculation, and apparent wealth; everywhere borrowed money was being spent in improvements, schools, post offices, hospitals, etc., and everywhere some people were thriving by exploit-

ing the assertion that a simpleton is born every minute.

Inevitably these boom days brought their reward. When the railroads, buildings, and public works were completed, when more money could not be borrowed, or when a small surplus in the world's wheat supply reduced the price of wheat, as it did in late 1912, the fabric of western prosperity, built up on credit and paper, was badly shaken. It began to be realized that optimism had overreached itself, that much of the prosperity had been caused by borrowing and spending other people's savings rather than by consuming the wealth the prairie-dwellers had produced for themselves. The country had to adjust itself, after a period of construction, to the conditions of a period of production. Such a transition always hurts, and Canada felt the pains all over its body. The land bubble was pricked; loan organizations could not get the interest or principal due to them; unemployment was rife; and the new transcontinentals were seeing financial rocks ahead.

The outbreak of war in 1914 found Canada in the midst of this work of readjustment, and at first it looked like the signal for even deeper discomfort. But soon people saw that the agricultural "plant" Canada had been building up in the West and the industrial equipment constructed in the East during the previous decade would now be extremely useful in helping the country to meet the Allies' requirements for food and munitions. Immigration from Europe virtually stopped, but the stream from the United States continued to flow, though in smaller volume. Wheat prices went high, and the war period was, on the whole, a time of

prosperity for the prairies. But peace, when it came, did what it always does to agriculture ; it pulled prices down, but left costs at the high levels to which they had climbed during the war. Interest rates, wages, freight rates, taxes, and the price of manufactured goods needed by the farmer, these do not fall much when war ends. Consequently, prairie farmers spent the early twenties painfully readjusting themselves to new conditions. They had just about accomplished the task when the economic *débâcle* of 1929 plunged them into unprecedented gloom.

One fact soon became apparent in the twenties, namely, that the prairie's period of rapid growth had come to an end. New land was settled here and there, and the northern fringe was pushed a little nearer the North Pole. But the only large area that was opened up was the Peace River country, a region whose future was sprinkled with question marks, and the only important railroad job was the construction of the track to Hudson Bay. Neither of these developments could compare with those of the twenty pre-war years.

The westward surge of those decades was marked by much personal suffering and failure, by settlement on land which was unsuitable or was too far from railways, by wholesale evasions of the conditions (concerning residence and improvement) of the Homestead Act, by disaster caused through leaving inexperienced new-comers to pick land for themselves without expert guidance, by the (often useless) activities of the man who got rich quickly and the tribulation (not always deserved) of the man who got poor quickly. But the broad stream of settlement flowed on, prairie was broken, elevators were built, railroads were laid, and

production was increased. In 1911 there were 170,000 more farms in Canada than in 1901, 30,000 more in 1921 than in 1911, but only 15,000 more in 1931 than in 1921. The number of people "gainfully employed" in agriculture grew by 30 per cent between the census of 1901 and 1911, after having fallen nearly 10 per cent during the preceding decade, and by 1911 Canada had established herself as the world's greatest exporter of wheat and as Britain's "bread basket." That position she has retained ever since.

**The West's
Transportation
Problem**

The expansion of the West brought the transportation problem to the front once more. It had four aspects. (1) How could settlers and their goods be taken to their destination, and their products be carried to a market which was largely overseas? (2) To what port was grain to be sent? To an Atlantic outlet, to Vancouver and so through the Panama Canal, or to some port on the near-by Hudson Bay and thence by the short route to Europe? (3) Which was better—an all-land route from the western wheat field or a land-Lakes-St. Lawrence route? (4) Could the grain be taken through Canadian channels to a Canadian port, instead of letting it find an outlet south of the border? Finally, the steadily improving financial record of the C.P.R. and the demand of farmers for more railroad services, led other railroad interests to seek a slice of the prairie pie.

One of these interests was the Grand Trunk, which since the fifties had been extending its service in the east and centre of the Dominion, and had pushed its western terminus out to Chicago. It had hoped, in

the seventies, to be given the task of constructing Canada's first transcontinental; now it saw that if it was to share in the prosperity of the period it must "go West and grow up with the country."

Meanwhile another Canadian railroad interest was feeling the need for going *east*. That interest consisted of two men, William Mackenzie and Donald Mann, known to their fellows as Bill and Dan. Mackenzie had been a general storekeeper at Lindsay, Ont., but he eventually decided that "there was more money in selling railway ties to contractors than in selling nails and baking powder to villagers." He secured a contract to build a section of the C.P.R., and met Mann. The two joined hands, and gave Canada one of the most energetic business partnerships it has ever known. They built lines for others, then began to build for themselves. The rush to Klondike and the prairies convinced them that the best field of action lay in the West, and after 1898 they began to acquire or build a network of lines to serve the new grain-growing population. By 1902 they had a line from Winnipeg to Port Arthur, and their railhead was in Saskatchewan; by 1905 they were into Edmonton. But why stop at that? Why remain merely a glorified local service? Why not stretch out to the Pacific, the Atlantic, and Hudson Bay?

To-day it is easy for us to say that the Mackenzie-Mann concern (known as the Canadian Northern) and the Grand Trunk should have become allies. This would have made a strong railroad unit, for one of the parties would have provided a network of prairie lines while the other would have contributed one covering the St. Lawrence country and the Atlantic terminals.

But in 1902 there were few people who would have given a moment's consideration to such a prudent policy. The tide was rising, railroads would be wanted in abundance, the Grand Trunk was eager to break into the C.P.R.'s preserve, and Bill and Dan were bubbling over with enthusiasm. The Maritimes wanted the wealth of the West to flow through their ports. Manufacturers and contractors were rubbing their hands in high glee at the thought of the orders for materials and construction work that would come from big railroad schemes. And politicians thought that their popularity might be strengthened if they could cry to the electors, "We have given you more railroads."

New Transcontinentals. In 1902, therefore, the Canadian Northern was given permission to span the Dominion. In 1903 the Grand Trunk and the Dominion Government joined hands to build a third transcontinental; the Grand Trunk was to build a line, the Grand Trunk Pacific, from Winnipeg to Prince Rupert, while the government was to build one which would run from Moncton in New Brunswick, across the back country to Cochrane, and on to Winnipeg. This government track, the National Transcontinental, was to be leased to the Grand Trunk for fifty years.

Then began a "race more exciting than the chariot contest in *Ben Hur*." The C.P.R. built more branch lines in order to fight its rivals. Mackenzie made frequent trips to Europe to raise capital for his venture, and was usually successful in borrowing many millions in London, Paris, or Brussels. The government's line from Moncton to Winnipeg was pushed ahead steadily; but its cost was so much greater than had been antici-

pated that the Grand Trunk Pacific refused to take it over, since it would, by its agreement, have been compelled to pay an annual rent of 3 per cent on the cost of construction. The Grand Trunk Pacific was also energetic; by the end of 1910 its main line stretched from Fort William to beyond Edmonton, and from Prince Rupert over a hundred miles into the Rockies, where a thousand teams were sometimes engaged in hauling supplies; and its sumptuous stations and hotels at Ottawa, Winnipeg, and Edmonton were almost completed. It even talked of a line to Dawson City, but the decline of gold-mining in the Yukon saved it from adding that line to Canada's railway liabilities. Finally, the Dominion Government began the Hudson Bay railway.

Between 1900 and 1915 Canada doubled its railway mileage, and in the latter year had 36,000 miles of track in operation; only 6,000 miles have been laid since then. Nearly a billion dollars had been spent on the work since 1900; new areas had been opened up, the grain-growers had been given better access to the coasts, and the opening of the Panama Canal in 1915 promised to make Vancouver and Prince Rupert valuable outlets for the produce of the western prairies. But the pace had been too fast; extravagant construction costs had loaded the railroads with interest burdens too heavy to be borne, except under extremely prosperous conditions; competition, rather than the country's needs, had spread three lines from coast to coast, whereas two would have been ample for many years to come.

Further, the hope that the National Transcontinental Railway would succeed in attracting a large grain

traffic from Winnipeg to Quebec and the Maritime ports proved unfounded. As the experience of the Canadian Pacific Railway had already shown, it is only in times of special emergency that grain will take an all-rail route eastward from the prairies in competition with the much lower charges of water transportation on the Great Lakes.

The Railroad Crisis. Canada reaped the reward of its excessive railroad building during the Great War, though even in 1912 the Canadian Northern was in financial difficulties, and in 1909 and 1913 the Grand Trunk Pacific had been compelled to seek loans from the Dominion Government. Neither of the roads was finished when war broke out, and neither of them could meet its interest charges. The government had promised to guarantee this interest to some extent, and was also a large creditor of both lines; it was therefore deeply involved in their fate, and could not allow them to suspend their traffic operations while the war was on. It therefore took them both over, along with the old Grand Trunk, which had been brought into bankruptcy by the misfortunes of its prairie child; the Canadian Northern passed into the government's hands in 1917, and the Grand Trunk system a little later. It also took over their bonded debt.

The government now found itself with 22,000 miles of railroad on its hands, including the old Intercolonial, the Hudson Bay line (which had cost \$15,000,000 and still needed another hundred miles of track to take it to the Bay), the old Grand Trunk, and the Mackenzie-Mann creation. All these lines were placed under the control of one board of directors, which at once began

the difficult task of welding half a dozen bankrupt and often competing railroads into one efficient system. Within two years very marked progress in equipment, economy, and service was made, and as the Dominion recovered from the depression of 1920-22 the National Railways began to have a hope of meeting the heavy interest charges they had inherited from the "magnanimous system of finance" under which some lines had been built. A jumble of derelict lines was turned into a well-equipped, efficient, unified system, and earnings in the boom years before 1929 rose to the point where they could pay interest on bonds held by the public, but not on the money lent by the government. In the dark days which followed 1929 the revenue of all Canadian lines was cut almost in half; the C.P.R. was obliged to reduce the dividend of 10 per cent, which it had been paying since 1912, to 5 per cent, and then omit payment entirely. The National Railways did not earn enough to pay *operating* expenses, and had to borrow from the government to meet those expenses and the interest charges. By 1933 their total debt was approaching \$3,000,000,000; and, though recovery made the financial condition of the two great railroads brighter, the Canadian railroad problem has not yet found any solution which is financially possible and politically acceptable.

Water Transportation. The expansion of the West intensified interest in the problem of inland navigation. At Confederation the Dominion Government took over the existing canals, and during the next thirty years spent about \$80,000,000 on maintaining, improving, and extending them. It cut a channel at the Sault

Ste. Marie, and deepened the Welland and St. Lawrence canals in order to give a channel fourteen feet deep between Montreal and the head of Lake Superior. But when the prairie boom began in earnest, much more ambitious schemes had to be considered. In the United States as well as in Canada the problem of getting cheaper and more adequate access from the heart of the continent to the Atlantic seaboard called for solution; traffic from the West became jammed in the "bottle neck" of the Atlantic ports, and there were not enough railroads or terminals to handle the produce.

Various schemes were therefore suggested in both countries; some Americans wanted a deep waterway from Lake Michigan to the Mississippi; others urged the improvement of the Erie Canal; others demanded a ship canal from the Lakes to the Hudson. Canada in 1913 began making a ship canal across the Niagara peninsula, and this new Welland Canal was formally opened in 1932. It is twice as deep as its predecessor, it has only seven locks, against twenty-six in the old canal, and each lock is about three times as long and nearly twice as wide as those formerly used. This great piece of engineering cost about \$130,000,000; when it was finished, the largest lake carriers could come down from the head of the Lakes into Lake Ontario and thence down the river to Prescott.

Meanwhile a still more ambitious scheme was considered by the governments at Ottawa and Washington. It pictured improvements in the St. Lawrence itself, in order to give a waterway, twenty-five or thirty feet deep, from the Atlantic to the head of the Lakes. Along this route big ocean-going vessels could travel;

they would pick up their wheat cargo at Duluth or Fort William and carry it all the way to Liverpool. They would fill their holds with the products of Cleveland, Detroit, or other great industrial centres and sail to the ports of the world. In addition, the scheme would allow the rapids on the St. Lawrence to be dammed up and harnessed, so that possibly 4,000,000 h.p. of hydro-electricity could be generated. Such a big navigation and power scheme would be one of the engineering wonders of the world if it could be carried out. But the enthusiasm of its supporters has been met by the hostility of many well-informed critics, and the scheme has not yet received the official approval of the United States and Canadian Governments.

**Expansion
in the East**

We must now go east and see how the expansion of the prairies, combined with other influences, stirred the older provinces to new life and development.

This new life was mining and manufacturing rather than agricultural, for while Ontario and Quebec are still responsible for nearly half of Canada's agricultural production, their expansion in other directions has been the outstanding feature of the last forty years. Other provinces also gave increased attention to various manufactures ; even the prairie towns soon boasted of their factories and workshops. Hence, whereas in 1881 there were four people employed in agriculture for every one engaged in manufacture, by 1911 there were only two, and in 1931 the ratio was seven to four. By 1920 the net value of "secondary" production exceeded that of "primary" production and has maintained the lead ever since.

The rapid expansion of manufactures after 1900 was due to many causes. The settlement of the West was undoubtedly the chief ; the new settlers wanted supplies of all kinds, and drew some of them from Canadian factories ; the building of the railroads created a vast demand for construction material and equipment, as did also the spending of provincial and municipal loans. But there were other causes as well, causes which can be covered by the assertion that Canadians, and others, discovered the great resources of the country and began to exploit them. Those resources were hydro-electric power, minerals, and wood.

Hydro-electricity. One of the chief handicaps of Central Canada was its lack of coal deposits and its dependence on coal brought from a distance. Water-wheels were not big enough to turn the machinery of large factories, firewood was becoming scarce, coal from Nova Scotia, Alberta, or the United States was costly when transportation costs had been paid, and Ontario's solitary oil-field at Petrolia was far too small to meet the country's demand for oil fuel. The first hydro-electric installation was at work at Niagara, on the United States side, by 1881, but little was really done to harness Canadian falls or rapids till after 1900.

By that date, however, manufacturers and municipalities were realizing the need for using the power that Nature had provided, and when a long coal strike in Pennsylvania in 1902 cut off Ontario's coal supply, closed factories, and brought a winter of real hardship to thousands of people, the need for using Canadian "white coal" was impressed deeply on the mind of those who lived in the coal-less regions. Private companies

began to produce power on the Canadian side of Niagara, and in 1906 the Hydro-Electric Commission of Ontario was established to buy or produce electricity and sell it at cost price to the municipalities of the province. At first the Commission bought power from private producers, but soon began to erect its own plants on the Severn and Trent Rivers, and later built a huge 600,000 h.p. station below the Niagara rapids. This power it distributed to the towns, large and small, scattered all over Ontario, and to certain rural areas, thus serving the needs of the householder, the farmer, and the manufacturer.

“Hydro” was a cheap substitute for steam and coal in the old, settled parts of Ontario and Quebec; but for two important industries—mining and paper-making—the position was virtually “No hydro, no industry.” Both needed large quantities of power to turn their huge grinding or crushing machines, or to allow them to treat and refine metals. It requires about 100 h.p. to make one ton of paper a day; about one-seventh the total cost of producing aluminium is swallowed up in power; while in the production of chemicals, cement, and a wide range of metals, modern methods call for large quantities of power. The rapid growth of mining, pulp- and paper-making, the production of aluminium, asbestos, and cement, and the treatment of metals since 1900—and especially since the war—have therefore been intimately connected with the growing utilization of water-power.

In 1910 less than 1,000,000 h.p. was generated in the whole Dominion, but nearly 8,000,000 h.p. was available by 1936. It was produced chiefly in Quebec and Ontario, but Manitoba, British Columbia, and the

Maritimes also have hydro plants or possess sources of power awaiting the engineer. It is estimated that the minimum power available for development all the year round is at least five times the present production. Hence, Canada still has large power reserves waiting to be put to work, and has entered an "electrical age."

Coal. The second natural resource discovered or actively exploited after 1895 was Canada's mineral wealth. In 1886 the total mineral production was worth only \$10,000,000. In that year more coal was imported than was produced in Nova Scotia and British Columbia combined, despite the National Policy which had placed a duty on imported coal. In 1893, however, a number of small mines in Cape Breton were amalgamated in the Dominion Coal Company; they were brought under one management, better machinery was installed, and transportation facilities were improved. In less than ten years output increased fourfold, and as other companies also became more energetic the output of the province rose rapidly, while coal was obtained in increasing quantities in British Columbia, and new fields were opened up in Alberta.

Unfortunately, the big coal beds are in regions where there is no great industrial demand for coal, for industry has not settled down on the coal-fields as it has in other parts of the world. The cost of bringing coal from Alberta or the Maritimes to the industrial centres is too great, and the only market is either the local consumer or the foreign buyer. But local consumption is not great, since the coal-producing provinces are not becoming important industrially; demand from the railroads and the domestic furnace does not grow

rapidly, the United States market is protected by a tariff wall, while overseas markets are dominated by British and German supplies. Thus Canada has not been able to exploit her rich coal resources as she has her other forms of natural wealth.

Iron and Steel. In only one important instance did coal attract a big industry to come and live with it. The development of iron and steel production is always a big step forward in the industrial history of a country, but is a difficult one to take. The works at Three Rivers and Marmora belong to the pioneer days, and little real advance was made in treating Canadian iron ore until the general boom began in the nineties. Those who made iron or steel articles usually imported their material or bought up scrap metal. One Hamilton firm bought the iron of the *Great Eastern*, the giant steamer built in England in the fifties; it purchased the metal in the first suspension bridge across Niagara, and that in the Victoria bridge built across the St. Lawrence at Montreal in the fifties. This metal was worked up into bar iron, the bulk of which went into the construction of agricultural implements. But as late as 1891 only 20,000 tons of pig iron were made from Canadian ore.

The Dominion Government tried to encourage the industry. In 1883 it began to offer a bounty on all pig iron made in the country; later it extended the bounty to steel, and introduced conditions favouring metal made from Canadian ore. In 1894 Ontario also began to offer a bounty. But little happened until some United States financiers became interested in Canada's iron and coal resources. These men brought new life

to the Nova Scotia coal mines, and then turned their attention to iron and steel. They saw that circumstances, "on paper, at any rate," favoured the production of metal at a cost below that of Pittsburgh. For Pittsburgh had to gather together its ore, coal, and limestone from places far apart, at a cost of about three dollars on each ton of "pig." Further, if Pittsburgh wished to send its product abroad it had to spend perhaps another two dollars a ton to get it to the coast. But a Canadian plant situated on Cape Breton would escape most of these transportation costs. Coal was on the spot, and limestone was near by; there were local deposits of iron ore, while 400 miles away, on Belle Isle, Newfoundland, vast quantities of rich ore had been found in the cliffs along the coast. The materials could therefore be brought together at one-third the Pittsburgh cost, while the plant could be built at tide-water and the finished product loaded straight into ocean vessels. Cape Breton's position as a steel-maker therefore seemed "something more than strong. It (was) simply impregnable."

The Dominion Iron and Steel Company was set up; a big efficient plant was erected at Sydney, and that township grew from 2,500 people in 1891 to 15,000 ten years later. Meanwhile, another Nova Scotia venture, which had begun in the seventies as a little forge with \$4,000 capital, in New Glasgow, became ambitious. This company had at first used scrap iron for its forgings; then it began to make steel, and finally decided to erect a complete plant, owning local coal mines, ore deposits in Belle Isle, limestone supplies, blast furnaces, steel hearths, and rolling-mills. This

company was the Nova Scotia Steel and Coal Company, and with its neighbour at Sydney it dominated the Maritime iron, steel, and coal industries.

Bounties and boom aided the establishment of iron and steel works inland. Iron ore deposits existed in Ontario, especially on the north side of Lake Superior. If Pittsburgh was growing big on Lake Superior ore, why could not places on the Canadian shores of the Lakes do the same? Coke could be imported free of duty from the United States and the necessary materials assembled at a low cost. At Midland and Collingwood on Georgian Bay, iron and steel works were set up, while farther west, at Sault Ste. Marie, the feverish optimism of a Mr. Clergue erected plants for producing iron, steel, pipes, tubes, steel rails, as well as hydro-electricity, pulp and paper, nickel, chemicals, machinery, rolling stock, and ships.

Some of these ambitious projects overreached themselves; but between them they helped to bring the industry forward from the infant stage of the 19th century. The output of pig iron increased fourteen-fold between 1890 and 1903; by the latter date the steel plants were getting to work, and production rose to over a million tons in 1913. Hence, when the war came, Canada had a large metal plant available, and was able to meet many munition requirements; steel production went two-thirds higher than its pre-war record, and the output of war equipment was large and varied. But the industry had been fed by the orders for construction work before the war, and by the needs of the armies during it; so, when the depression of 1920 came, the industry had to face a diminished demand and increased competition from Europe and

the United States. The boom of 1926-29 gave it new energy; production climbed to war-time levels, only to fall away once more after 1929, and to revive rapidly after 1932.

Other Minerals. The most spectacular feature of Canada's recent mineral development has been the discovery of varied wealth buried in the Laurentian Shield and the Rockies. Before Confederation, gold had been mined in British Columbia and Nova Scotia, silver had been found at Thunder Bay (Port Arthur) and in many other parts of Ontario, while copper was being unprofitably worked north of Lake Superior. But the labours of the prospector, the geologist, and the railroad-builder had to be done before the country knew what it was worth in mineral deposits. Hence, the total mineral output in 1886 was worth only \$10,000,000, but less than a quarter of it consisted of metals.

Fifty years have brought a remarkable increase in the value of production, and of the \$300,000,000 worth of minerals produced in 1929, gold, lead, nickel, copper, silver, and other metals accounted in all for one-half. The discovery of new sources of many of these minerals was a mixture of chance and romance. For instance, the asbestos deposits in Quebec were found by men who were building a railroad in the Eastern Townships district; the copper-nickel ores of the Sudbury field were found when a cutting was being made for the C.P.R. in 1883; and the construction gangs on the Temiskaming and Northern Ontario Railroad in 1903 uncovered at Cobalt veins of silver which gave Ontario one of the richest silver-mining centres in the world.

The same railway made possible the further exploration and development of the Porcupine gold area.

In these instances, discovery and means of transport came together, and so each "find" was soon followed by an inflow of capital and the working of the deposits. Within eight years of its discovery the Cobalt field was producing over 30,000,000 ounces of silver. The gold output of Ontario in 1911 was worth less than \$50,000, but in 1931 it had grown to about \$43,000,000, and that of the whole Dominion to \$58,000,000. This value was at the rate of about twenty dollars an ounce ; but when the United States in 1934 raised the price of gold to thirty-five dollars and the London gold market offered about the same price, gold-mining became much more profitable, and the output was greatly expanded in Canada, reaching a total value of \$143,000,000 in 1937. Gold-mining was almost the only industry to avoid depression in 1929. The Sudbury copper-nickel field was first worked for copper, but when nickel was found in the ore the industry developed rapidly, for metallurgists had just discovered that the addition of a small quantity of nickel made steel tough, hard, shock-resisting, and rustless. By 1926 Canada was supplying four-fifths of the world's nickel requirements, and the scientist was discovering new uses for that metal. The production of asbestos, like that of nickel, depended largely on finding more uses for the mineral, and since 1895 the output has grown thirtyfold, making asbestos the chief mineral product of Quebec, and Quebec the chief source of world supply. Only time can reveal the full extent of the mineral treasures concealed in the empty lands of Canada's northern fringe ; but already the country ranks high among the producers of those

metals which are essential to modern industry and monetary systems.

Forest Wealth. Forest wealth received increased attention after 1890. The industry shared in the general prosperity, and began to adopt large-scale mechanical



Both heavy timber of British Columbia and a corduroy road are here strikingly illustrated.

methods of production and transportation. Oxen gave place to steam-engines, rail-tracks were built from the mill or the water-edge out into the forest, and, whereas once it was believed that timber was useless if it was three miles from water, the small powerful engines now began to haul big trunks from far inland. Rail, road, or telephone gave better contact with the outside world, the task of getting supplies of food, etc.,

became less difficult, and the old legend that lumber-jacks were fed on beans "twenty-one times a week" was forgotten. Sawmill equipment was improved and made larger, and big business dominated the industry on the Ottawa and in New Brunswick, as well as in British Columbia.

British Columbia forged ahead after 1900 as the chief lumber province. This was due to four main factors. (1) The easily accessible saw-timber belts of the East had been exhausted. (2) Abundant rainfall and mild temperature produced big forests, big trees, and plenty of them, especially such trees as the Douglas fir and the cedar. (3) The industry grew up later than that in Eastern Canada, and used large-scale and mechanical methods almost from the beginning. (4) The opening of the Panama Canal gave the west coast easier access to the markets of Europe and the Atlantic coast of North America. In 1908 the western province produced less than one-fifth of the Dominion's lumber, but in 1938 she produced three-fifths.

Pulp and Paper. Meanwhile, lumber gave place to pulp and paper as the centre of forest interest in Eastern Canada. In the old days, when paper was made of rags, rope, or straw, one or two small paper-mills were set up in Canada, and as early as 1825 the Upper Canada Government gave a bounty to the first paper-maker in the province. With the spread of education and the growth of newspaper-reading in the second half of the century, the supply of rags in the world became insufficient to meet the demand for paper, and eventually experimenters found a way of making paper from wood. But Canada was slow to take advantage of this dis-

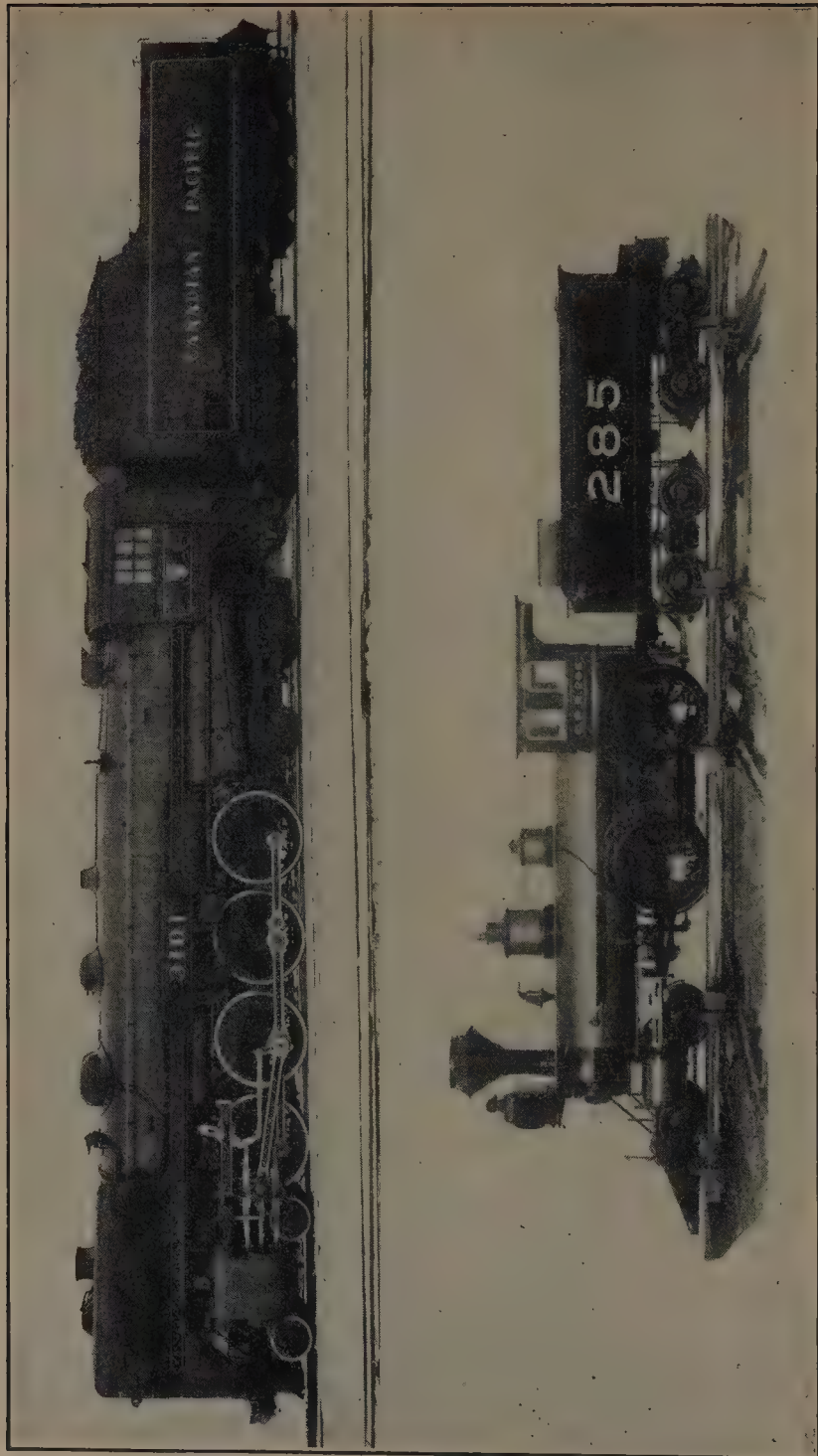
covery, and for a time the chief paper-makers were Norway, Sweden, and the United States. Canada in 1881 had only five small mills, with a total annual output of \$63,000.

Gradually, however, the United States exhausted its supply of available raw material, and as newspapers grew in size and circulation an insatiable hunger for newsprint developed, for which United States paper-makers could not provide sufficient food. The United States therefore turned to Canada. At first she bought wood, which she made into pulp in her own mills ; then she began to make pulp on Canadian soil, and finally built huge plants for the manufacture of the finished article as well as the pulp. Provincial governments demanded that some of the work of turning wood into paper should be done in Canada, and refused to grant timber licences except on that condition. Canadians also realized the possibilities of the new industry, and the invasion of the spruce and balsam forests of Quebec and Ontario began in full force.

The invaders had an ideal country to conquer. Pulpwood covered millions of acres ; Quebec in 1926 had 200,000 square miles of forest, of which only about 12,000 had passed into private hands, and the total forest area of the Dominion probably covers a million square miles in all. So there were big areas which could be made available for large companies with costly plants ; in addition there was abundant water-power, while the finished product could be loaded straight from the mills on to steamers. Finally, there was a big market next door, and beyond that lay countries which wanted paper but had not the necessary materials or power.

The growth of the industry was therefore rapid. In 1881 there were five mills ; in 1891 there were twenty-four, with an output worth a million dollars ; in the next twelve years the production increased fivefold. The quantity of pulpwood cut in the forest rose quickly, but, whereas in 1908 about two-thirds of the cut went to the United States, to-day four-fifths of it is worked up in Canadian mills. After 1920 the whole industry bounded forward, and great sums of capital were sunk in the machinery, hydro-electric plant, etc., needed to turn the wood into pulp and the pulp into paper. In eight years the output of newsprint and other kinds of paper more than trebled, and when the depression of 1929-33 lifted the yield soared rapidly again. Canada now makes more than one-third of the newsprint consumed by the newspapers of the world.

Growth of Manufactures. Of general manufactures little need be said, except that the range of goods made in Canada grew wider and the factories grew larger. The greatest success came in industries which were handling the country's primary products, such as milling, meat-packing, cheese and butter-making, canning, woodwork, and metal smelting or refining. Other successful lines of development were the production of agricultural implements, the manufacture of metal articles required for domestic and construction purposes, and the making of vehicles. The production of cotton fabrics grew steadily from the adoption of the National Policy, as did the manufacture of clothing, but the weaving of woollen and worsted fabrics did not meet with such great success, in face of keen competition from the older industry in Yorkshire. Miscellaneous products, such



One of the first locomotives built in Canada, and one of the latest.
(The scale is approximately equal.)

as furniture, jewellery, musical instruments, electrical equipment, carpets, paint, leather, and rubber, all came increasingly from Canadian factories, and in some of these lines the country came near to supplying its own needs and even to finding a market abroad. Even shipbuilding revived somewhat, but this time the vessels were built of steel. One industry, that of making vehicles, naturally grew to great size in a country where land transportation is so important. The new railroads called for more rolling stock of all kinds and of greater size, for they sought economy through the hauling of long heavy trains with powerful engines.

Automobiles. The automobile industry began in Canada in 1901, when a Toronto bicycle firm made a few cars. In 1904 Mr. Ford erected a Canadian plant at Walkerville, and his output for the first year was 117 cars. Four years later, the McLaughlins, who had been producing buggies and sleighs at Oshawa since 1878, put their first cars on the market. Thus by 1908 motoring had entered "the springtime of its popularity in Canada," though people were not yet sure whether it was "a sport, or system of locomotion"; and there were available Canadian-built cars, ranging from the four-cylinder Ford "jaunty runabout," which weighed less than half a ton and cost \$750, to the "lordly landaulette," with six cylinders, offering any speed "from a walk to 60 miles an hour on the throttle," and costing \$3,500.

From these beginnings the industry grew rapidly, as United States firms established more branch factories in Canada. At first these plants assembled parts sent over the border, but gradually the making of some of

these parts was undertaken in Canada. Hence the importation of complete cars diminished relatively in importance, and, in 1929, 50,000 cars were imported, but over 260,000 were made or assembled in the country. Since most cars bought in Canada are purchased during the five summer months, the factories gave especial attention to developing export markets



An early advertisement (1905) of a "Made in Canada" car which reads :

It has power, good lines, is luxurious in finish and appointments, but best of all it can stand the rack and wear of Canadian roads. Specification: 12 to 14 h.p., double cylinder opposed engine, 90" wheel base. Price \$1,500.

in order to keep them busy all the year round, and some of the branch factories were established to cater for the overseas market—especially in the British Empire—as well as for the local buyer. In 1929 two-fifths of the cars made here were exported, and the export value of cars and accessories was exceeded only by those of grain and flour, pulp and paper products, and wood and wooden manufactures. As producer and exporter

of automobiles Canada ranked second to the United States.

The Influx of Capital. In the East and West alike, the expansion of the past forty years has been due in large part to the energy of the native-born Canadian and the immigrant. But much of it was due to the influx of capital and plans from abroad. The capital came in two streams, one from the south and one from Europe, and these streams went into different channels after entering the country. British capital had played the chief part in building the Grand Trunk and the C.P.R., and in supplying loans to public authorities. The British lender, through long experience in many lands, had learned that it was safer to lend for a low but sure interest than to risk his money in ventures which *might* pay large dividends, but which, on the other hand, might pay nothing at all. He had burned his fingers in mining ventures in different parts of the world, including Canada, and so would have little to do with Canadian mining fields. He preferred to stick to government and municipal loans, or to the bonds and shares of railroads, power plants, and other public utilities; but if he was venturesome, he might invest in western lands, especially town sites, or the bonds of well-established industries. Hence by 1910 it was estimated that about \$1,800,000,000 of British capital had been invested in Canada; but of this, about nine-tenths had gone to governments, railroads, municipalities, and street-cars. In that year, 57 Canadian loans were floated on the London market, and between 1910 and 1914 the total British investment rose to probably \$2,500,000,000.

The United States investor was more audacious. With the example of his own country's expansion before his eyes, he believed that history would repeat itself. He knew that the prairies would grow as his own prairies had done, that land would increase in value, that goods of all kinds would be wanted, and that there would be a wonderful market out west. He "guessed" that Canada's supplies of raw materials would be needed as the Dominion advanced and as his own country's supplies became depleted. Or he saw that by establishing a branch factory in Canada he could jump the tariff wall, and thus profit more than if he made his wares at home and sent them north. Besides, people were talking about imperial preference, and were urging that goods produced in one part of the Empire, say Canada, should be admitted into other parts of the Empire, say Great Britain, at a lower tariff rate than was charged on goods from other countries. Even as early as 1902 some Canadian journals were saying, "If the English people ever established a preference in favour of colonial products, what a boom it would give to Canadian industries"; and some United States manufacturers saw that it would also give a boom to their plants situated inside the ring-fence of the Empire.

United States capital went chiefly into the prairies, branch plants, new industries, and the exploitation of raw materials. Capitalists from Chicago, Duluth, and Minneapolis formed the Saskatchewan Land Co., in 1902, to buy a million acres of land; American capital built up the ambitious group of industries at the "Soo," and reorganized the coal and iron industries in Cape Breton; it brought large-scale logging into

the British Columbia forests, and found a great prize in the pulp and paper resources of the Dominion. Sometimes a factory which already existed in Canada was absorbed in an international trust or merger, but in many cases American firms built new plants. By 1914 there were at least 200 branch factories at work. Hamilton had fifteen, of which the chief was the big harvester works; Montreal had nineteen, Toronto sixty-three, and many smaller towns boasted one or two. Peterborough became one of the Canadian homes of American producers of cereals and electrical equipment, while Oshawa grew to be the outpost of the biggest automobile organization in North America.

Still, in 1914, the United States was a small investor when compared with Great Britain; there were about five dollars of British capital for every American dollar invested in the country, and in 1913 three-fourths of the new Canadian bond issues were placed in London. The war changed the whole position. It cut off the flow of loans and investments from London, and Canada had to turn elsewhere for private capital and public loans. In part she turned to the United States, and borrowed more heavily in New York. This added to the northward flow of capital, and after the war private investment came into Canadian industry in greater force than ever. In 1929 there were in Canada more than 1,400 branches of American plants; and the sum of money lent to governments had become so great that the total American investment in 1934 was nearly \$4,000,000,000 while the British was less than \$2,750,000,000.

But the war taught Canada to lean more on herself for her new needs, and she discovered that she could

raise a lot of money within her own borders. Hence, whereas in 1913 the country placed only one-eighth of its new bond issues at home, it raised nearly the whole of them there at times during the war, and to-day meets over half of its requirements out of its own pocket. Three-fourths of the interest on the Dominion bonded debt in 1933 was payable in Canada. Probably 60 per cent of the capital invested in manufactures is owned by Canadians, and the flow of funds from London and New York will probably never again be as important as it was in the first quarter of the century.

**External
Trade**

In conclusion, let us see where all the growing output of goods went. Of every three dollars' worth of goods produced in 1928, two were consumed at home and one went abroad. Few other countries export so large a fraction of their products as one-third, and Canada stands alongside such other great exporters of a few special products as Denmark, New Zealand, Australia, and Great Britain, in depending for her welfare on the volume, and still more on the value, of the goods she can sell abroad. A collapse in the demand, in the price offered, or in her own output, brings tragedy to those who produce for the home market and to those who serve the outsider. In technical language, the Canadian economy is *inherently unstable*, since it depends so much on the size of the wheat crop, on the price of wheat, on the willingness or ability of external purchasers to buy farm, forest, and mining products, and on the price they are willing to pay. When all is set at fair, Canada obtains

a large national income ; when all is set at foul, deep depression stalks the country, and there is very little we can do about it.

This instability has been manifest many times in Canadian history, but never so dramatically as after 1929. Between the height of the boom (1928-29) and the bottom of the depression (1932-33), the " net value of production " fell nearly 50 per cent, the value of exports dropped 66 per cent, and that of imports 68 per cent. In the first year of recovery the value of exports jumped 22 per cent, in the second year 14 per cent, and in the third year 12 per cent. Imports climbed 7 per cent in the first year, 20 per cent in the second, and 8 per cent in the third. A trip on a roller coaster is exhilarating at a fair ; but in economic life the downward rushes are distressing and dangerous.

Exports. The *volume* of exports grew probably four-fold between 1900 and 1928, and the *value* eightfold. This growth is explained by the great outpouring of farm products, the rise of the trade in wood and paper, and a higher price level. These commodities comprised 36 per cent of the exports of 1900 and 75 per cent of those of 1926, and thus show the influence of paper and prairie on the export trade. After 1910 gold and the other metals became more important in the export figures, and by 1926 provided 12 per cent of the exports. They fell heavily during the depression, but recovered more quickly than did farm exports, and in 1935 supplied almost a third of the exports. Finally, the industrial development of Canada added to the variety of its exports, and in 1929 about 10 per cent

of the exports consisted of automobiles, tires, rubber footwear, farm implements, machinery, films, whisky, etc. If to this list we added all those primary products of the farm, mine, or forest which have undergone some treatment before export, the percentage of manufactured or processed exports would be much larger.

Imports. We can divide Canada's imports into two parts. The first consists of the normal supply of articles which the country would want under any circumstances, because it cannot produce them itself for climatic reasons, or because it has not yet the necessary productive equipment, or because, in spite of tariffs and transportation costs, it can buy less cheaply at home than abroad. Climate decrees that Canada must always import her raw cotton, silk, sugar, tropical fruits, winter vegetables, tea, coffee, cocoa, and rubber. Until a cheaper way is discovered for transporting coal from Alberta or Nova Scotia to the centre of the Dominion, coal for Ontario must be imported from Europe or the United States. And even if Canada became as highly industrialized as Britain or the United States, she would still find it necessary to buy some manufactured specialties abroad. All these causes lead to the importation of many kinds of commodities, and these can be regarded as payment made in goods for the things Canada sends abroad.

The second part is made up of the capital which is sent to the country on loan or for investment. Although the picture is not quite an accurate one, we can think of the lenders and investors sending us blast furnaces, machines, steel rails, factories, electrical

equipment, engines, public buildings, etc. And alongside this picture we can imagine another one, of Canada paying interest and profit to the lender or investor by sending him wheat, flour, lumber, paper, automobiles, butter, and so on. When Canada was drawing heavily on external capital her imports were much bigger than her exports, since they combined goods sent to pay for exports and goods sent as investments.

At the height of the movement in 1913 she received goods worth \$190 for every \$100 worth she sent away. But with the outbreak of war and the stoppage of British capital arrivals, the position changed rapidly; the inward flow diminished, but Canadian produce was wanted in the largest possible quantities for the Allied forces. In 1915 Canada exported more than she imported. On only about five previous occasions since Confederation had this happened; but with three exceptions (1921, 1930, and 1931) it has happened every year since then, in spite of the influx of American capital. Hence the normal condition is now a substantial surplus of exports, in order to pay for the goods we import *plus* the interest and profits on capital owned abroad. But some of this surplus is due to the fact that Canadians now export some of their own capital, especially for investment in United States securities. In 1934 these investments were worth \$2,000,000,000.

Direction of Trade. The Dominion Government has persistently tried to influence the direction of foreign trade in two ways. (1) In 1897 it began to levy lower tariff charges on British goods than on those from elsewhere, and during later years treaties were made with

most other self-governing parts of the Empire, by which each party promised the other lower duties on certain specified articles. So long as Great Britain was wedded to free trade, that country could not give the Dominions preferential tariff treatment, but during and after the war she was able to do a little, and when she abandoned free trade entirely in 1931 the way was open for far-reaching preference in the British market. The first British tariff allowed Dominion goods to enter duty-free or at a lower duty rate than was imposed on foreign goods. At the Ottawa Imperial Conference of 1932 the Dominions made stronger agreements with each other and with Great Britain, thus gaining quite substantial preference in each others' markets.

(2) Reciprocity with the United States came to an end in 1866, but the hope that it would be revived was never far from the front of many men's minds during later decades. Both Canadian political parties were willing to go far in order to reach a new agreement; but nothing happened; the pilgrims to Washington met with rebuff. After 1900, however, when prosperity came to Canada, reciprocity was almost forgotten, for there was now no need for it; evidently there were other ways of opening the cave of wealth than that of crying "Open, Sesame!" to the United States market. Now, however, the United States awoke to a realization of the value of Canadian markets, and reciprocity became much more desirable in the eyes of Washington. This time the United States President took the initiative, and the pilgrimage headed for Ottawa. The Laurier Government gave a favourable reception, and agreement was reached in 1911. But the Canadian electors rejected the plan at the election

of that year, partly because they were now strong enough to do without it, partly because they feared it was a stepping-stone to annexation, partly because they thought it would weaken the connection with Great Britain, partly because they suspected it would expose Canadian industries to fiercer competition, and partly because the decision, being made at an election, was made on party-political lines. For twenty-four years Washington and Ottawa looked different ways and, when either of them altered its tariff, it usually raised duties against the other. But in 1935 and 1938 new reciprocal treaties were negotiated, which lowered in some places the tariff wall each had erected against the other. While imperial preference gave Canada an advantage in the British and Dominion markets, the treaty with Washington lowered the barriers across the road to the American market.

In view of these efforts on the part of the government, where have the main channels of foreign trade run? The following tables tell the story in outline:

Where Canadian Exports went to.

YEAR.	U.K.	U.S.A.	OTHER COUNTRIES.
	Per cent.	Per cent.	Per cent.
1896	57	34	9
1914	50	38	12
1922	40	40	20
1929	31	37	32
1931	27	44	29
1935	41	34	25
1937	38	41	21
(4,839)			26

Where Canadian Imports came from.

YEAR.	U.K. Per cent.	U.S.A. Per cent.	OTHER COUNTRIES. Per-cent.
1896	31	51	18
1914	21	64	15
1922	16	69	15
1929	15	69	16
1931	16	64	20
1935	21	58	21
1937	19	59	22

From these tables we learn several things. (1) The United Kingdom and the United States combined have for forty years supplied us with about four-fifths of our imports, and the proportion we draw from elsewhere has grown very slowly. They also take two-thirds to three-quarters of our goods, but forty years ago they took over nine-tenths; so our export trade has been spread over a wider field of smaller customers, who in 1929 took about one-third of what we had for sale. These customers come to Canada for the materials which are not found in their lands, *e.g.* Japan is deficient in certain mineral deposits, South Africa is a poorly timbered country, and Australia has few soft woods or pulp woods. Or they come to supplement their own food and mineral supplies, or they want the North American types of agricultural implements and automobiles.

(2) The gain in exports to the smaller countries has been accompanied by a decline in the proportion going to the United Kingdom. This is only a decline in *proportion*, not in volume or value, and the British

Isles remain the largest market for Canadian food products.

(3) Since 1896 the United Kingdom has, in terms of percentages, lost its hold on the Canadian market, while the United States has strengthened its grip. This development was apparent before the war, but became much more marked after 1914, and in 1929 the United States supplied two-thirds of Canada's imports, while the British Isles contributed less than one-sixth. In the days of shrunken international trade after 1929 we bought a larger share of the greatly reduced imports from Britain, but with recovery the old trend asserted itself. There are several reasons for this predominance of the United States in our import statistics. Her nearness to Canada gives her a big advantage in advertising and in lower freight costs, while Canadians want the same kinds of goods as do her own people, since tastes and standards are much alike on both sides of the border.

Further, the United States is the natural source of supply for coal, oil, gasoline, semi-tropical fruits, cotton, and tobacco, so a large part of the imports consists of foodstuffs, fuel, and raw or semi-manufactured materials, *e.g.* automobile parts which are sent to be assembled in Canadian factories. British imports, on the other hand, have usually been fully finished articles which have had to bear a heavy duty, which have not always met Canadian requirements as well as did the American article, and which have been displaced by the rise of Canadian factories or the competition of the American rival. Even when London was lending lavishly in the early part of the present century, Canada did not spend all the money

on British goods, but used a lot of it to buy American wares.

(4) The Ottawa trade treaties gave British manufacturers a stronger position in competing with their American and Canadian rivals in the Canadian market, and this may increase the percentage of British imports. They also strengthened Canadian exporters' chances in competing with American rivals in the British and Dominion markets, and trade within the Empire may become more important to each member of the imperial family. The Canadian-American agreements facilitated the Canadian export of newsprint, wood pulp, and lumber, and admitted a small quantity of a few farm products into the United States. But in any case America would buy forest products and minerals in Canada in good times; and the strength of the American farmers' vote will never allow much farm produce to be imported into the United States. Hence Canadian trade is likely to run in the same channels as in the past. The farmer will find his greatest market in the British Isles; the producer of paper, metals, and whisky will look chiefly to the United States, while the manufacturer will enjoy a sheltered but limited market in other parts of the Empire. Imports will continue to come chiefly from the United States, with Great Britain a poor second. The rest of the world will buy about a quarter of Canada's exports, and supply about a fifth of its imports. No political bargaining is likely seriously to disturb this general trade pattern.

Supplementary Reading.—Innis, M. Q., *An Economic History of Canada*; Innis, H. A., and Lower, A. R. M., *Select Documents in Canadian Economic History, 1783–1885*; chapters by Shortt, Skelton, and others on economic affairs in *Canada*

and its Provinces ; MacGibbon, D. A., *An Introduction to Economics for Canadian Readers* ; and *The Canada Year Book*. Many books have recently appeared dealing with special subjects or periods, and more are on the way. Of these only a few can be mentioned, such as Glazebrook, G. P., *A History of Transportation in Canada* ; Creighton, D. G., *The Commercial Empire of the St. Lawrence* ; Tucker, G. N., *The Canadian Commercial Revolution, 1845-1851* ; Trotter, R., *Canadian Confederation* ; and Mackintosh, W. A., *Agricultural Co-operation in Western Canada*. The *Canadian Historical Review* and the *Canadian Journal of Economics and Political Science* will keep you informed about new books and ideas.

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